

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 85.

NEW YORK, SATURDAY, JULY 16, 1904.

No. 3.

ORIGINAL ARTICLES.

THE RELATIONS OF SURGERY TO THE RECENT ADVANCES IN THE KNOWLEDGE OF THE PANCREAS.^{1,2}

BY GEORGE WOOLSEY, M.D.,
OF NEW YORK;

SURGEON, BELLEVUE HOSPITAL, ASSOCIATE SURGEON, PRESBYTERIAN HOSPITAL; PROFESSOR OF ANATOMY AND CLINICAL SURGERY, CORNELL UNIVERSITY MEDICAL COLLEGE.

THE subject of pancreatic surgery is already so broad that I can only speak at length of certain phases of it, briefly referring to some of its other aspects. As compared with the surgery of the gall-bladder and appendix, that of the pancreas has certain natural limitations which our present knowledge of it has imposed or helped to remove.

I. On account of its physiological importance, we cannot remove the pancreas with impunity, as we can the gall-bladder and appendix. Von Mering and Minkowski showed that in dogs complete extirpation of the pancreas was invariably followed by symptoms of a fatal diabetes. Thus we cannot by a radical extirpation prevent the recurrence of a pancreatitis as occurred, for instance, in Halsted's case.

The same experimenters found that if a small portion of the gland remains, whether connected with the duct or not, there is no glycosuria until that portion atrophies. Hence, with few exceptions, tumors of the pancreas may be removed without immediate danger of diabetes, but the difficulties of the technic often contraindicate the operation. The lack of pancreatic secretion in the intestines can be supplied by administering pancreatin, but we cannot supplement the internal secretion.

The experiments of Herter in reference to the inhibition of pancreatic diabetes, after extirpation of the pancreas, by removal of the adrenals or ligation of their arteries, suggested the possibility of such removal or ligation to prevent diabetes after operations on the pancreas, or even to cure an established diabetes. But apparently the operation on the adrenals to be effective must precede the extirpation of the pancreas and even then the effect is probably not permanent.

Even incision into the pancreas has its dangers or harmful results, for not only may the hemorrhage, which is often abundant, be difficult to control, but the leakage of secretion may cause (1) a lack of peritoneal adhesions, leading to peritonitis, (2) a fat necrosis of the subperitoneal fat, (3) a chronic fistula with irritation of the surrounding skin. I have had such a case of fistula following the exploration of a carcinoma of the head of the pancreas, but have known of

excision of a fragment for examination to be followed by no bad results. The trauma of an incision of the pancreas or an operation on it, radical or exploratory, may be sufficient to cause pancreatitis.

II. The topography of the pancreas, situated so deeply in the upper part of the abdomen, hinders the development of the diagnosis as well as the operative treatment of pancreatic disease. Several points in the anatomy of the pancreas have been studied or emphasized in recent years. Opie found that the duct of Santorini, though always present, could not act as an accessory outlet to the duct of Wirsung in 34 out of 100 cases, on account of the small size or absence of one or the other end. He also called attention to the relation of the pancreatic duct to the diverticulum of Vater, from which it follows that a stone of small size, impacted within the diverticulum, may completely occlude its outlet without occluding the opening of the pancreatic duct. Such an impaction of a biliary calculus prevents the outlet of bile, which is often infectious in such cases, but favors its passage into the pancreatic duct, especially if the gall-bladder is capable of contraction, thereby raising the pressure in the bile duct. The association of pancreatitis with cholelithiasis has been noted by a number of writers and it has been caused experimentally by injecting bile into the pancreatic duct. Moreover, in an autopsied human case of pancreatitis, Opie found a stone impacted in the diverticulum of Vater, causing a back flow of bile into the pancreatic duct as shown by the staining of the latter.

While this explanation of the etiology of many cases of pancreatitis does not assist the surgeon in operating when once the inflammation exists, it suggests another reason for the more general operative treatment of cholelithiasis as a prophylactic measure.

Besides the transperitoneal routes of reaching the pancreas through the gastrohepatic or gastocolic ligaments or the mesocolon, the topography of the gland has more recently suggested the retroperitoneal route in the costovertebral angle. This is principally useful for drainage rather than for any manipulation, and is only applicable for the exposure of the head or tail of the pancreas, especially the latter, for on the right side posteriorly we have the commencement of the portal vein.

III. The severity and often rapidly fatal nature of the lesion is an impediment to successful operative treatment. Of late the opinion has been gaining ground that in acute pancreatitis it is best to operate early and not to wait for recovery from the initial collapse, but to treat the latter by infusion, etc. As I have stated elsewhere, I am heartily in favor of this course.

¹ Read before the Academy of Medicine February 4, 1904.

² Received for publication, February 20, 1904.

IV. As a result of the comparative rarity of acute or subacute pancreatitis, few, if any surgeons, have had a large personal experience. Although I have operated on two acute cases within ten days of one another, yet two years have gone by since operating on my third case. This limitation of personal experience lessens our skill both in diagnosis and operative treatment.

V. It is the difficulty of diagnosis which more than anything else prevents the more rapid development of the surgery of pancreatitis, as well as of other lesions of the gland. As a matter of fact the diagnosis is seldom made until the operation or autopsy reveals it. Have the recent advances in the knowledge of the pancreas added nothing to our ability to diagnose acute and subacute pancreatitis? The subjective and objective symptoms and the disturbances of function are the means that we have at our disposal. Little or nothing new can be said of the former two, while the symptoms attributable to disturbed pancreatic function are, according to the data collected by Oser, almost invariably connected with chronic lesions productive of extensive destruction of pancreatic tissue, or with interference with the passage of its secretion into the intestine.¹ When there is extensive chronic destruction of pancreatic tissue, with or without diabetes, the patient is, as a rule, beyond the help of operative measures. Glycosuria is present in only a minority of the cases. Visible fecal fat and undigested muscle fibres are most often associated with chronic obstruction of the pancreatic ducts, hence they are only of service in the diagnosis of chronic pancreatitis. The occurrence of pentose, the quantity of ethereal sulphates and the presence of the fat splitting ferment in the urine, the use of which is of recent date, are inconstant or uncertain. Only the presence of the latter, suggested by Opie, would appear to be of service in the diagnosis of acute pancreatitis, and it has not yet been sufficiently investigated. But little if any light, therefore, has been shed on the diagnosis of acute pancreatitis by recent advances in our knowledge.

I wish to call attention, however, to two points in the diagnosis of acute pancreatitis. Flexner has observed the fact² that in experimental pancreatitis glycosuria appears early (thirty minutes at the earliest) and disappears after a few days, even in lasting alterations of the pancreas. In the third and last case of acute pancreatitis upon which I have operated, glycosuria was present in large amount on the first day and had disappeared by the third day. In the two other cases seen for the first time on the first and third days of the attack it was not noted. It seems to me not unlikely that if we see cases of acute pancreatitis soon after the onset of the attack, transient glycosuria may be more often observed.

My limited experience coincides with that of Hahn when he says that severe acute pancreatitis,

in contrast with the more subacute forms, presents quite a characteristic picture for the purposes of diagnosis, so that to make a probable diagnosis lies mostly in the realm of possibility. Its onset is sudden, with intense, colicky epigastric pain, later becoming general, severe vomiting and eructations, and distention, rigidity and tenderness, especially of the upper abdomen. There is marked collapse and the face and extremities are cold, often cyanotic and covered with a cold sweat. The pulse is small and rapid and the temperature is not high, often subnormal. Motor disturbances of the stomach and intestines, *i.e.*, vomiting and obstipation, are so commonly associated that the diagnosis of intestinal obstruction is most often made. If this symptom-complex occurs in connection with corpulence, alcoholism, gall-stones, gastroduodenal catarrh, traumatism or arteriosclerosis, conditions in which acute hemorrhagic pancreatitis is most often found, the diagnosis is made still more probable.

Though the recent advances in the knowledge of the pancreas have so far helped us very little in the diagnosis of acute pancreatitis, yet it is probable that it is and will be made more often than in the past, because we better understand the symptoms, and are more on the lookout for the condition. It is most often mistaken for acute perforative peritonitis or acute obstruction of the bowels, high up, and many times cannot be differentiated from them. Although the latter condition is not common, most cases of acute pancreatitis have been operated on with the diagnosis of intestinal obstruction.

Emphasis should be laid upon the fact that the best means of diagnosis and treatment is an early laparotomy, and that this is also the proper treatment of those conditions for which the pancreatitis may be easily mistaken, including, besides the above-named conditions, various lesions of the gall-bladder and appendix. The diagnosis is established if the exploratory incision reveals the presence of fat necrosis, which Flexner and others have shown to be due to the escape into the tissues of the fat-splitting ferment of the pancreas. If fat necrosis is not present the presence of a hemorrhagic exudate and manual examination of the pancreas may also lead to the diagnosis.

As to treatment, heretofore the expectant plan was commonly advised until the symptoms of collapse had passed off. At present I think the best surgical judgment is turning in favor of early operation. As Hahn³ says, most severe cases die within four or five days, many indeed in the first twenty-four hours. Those that survive longer develop general peritonitis, local abscess or necrosis of the pancreas. In a very few cases the process is arrested. I do not question that, at present, statistics may show a better prognosis among those operated on for local abscess or necrosis, in what may be called the second stage, but they do not take into consideration that most

¹ Fitz: Transactions of the Congress of American Physicians and Surgeons, Vol. VI, 1903, page 37.

² Flexner and Pearse: *University of Pennsylvania Bulletin*, August, 1901.

³ Hahn: *Deutsche med. Wochenschrift*, 1901, v. p. 5.

of the cases die before reaching it, that the best means of treating the collapse is evacuation of the peritoneal exudate and an intravenous infusion, and that many cases do not develop a local abscess but a general peritonitis, as in three cases upon which I have operated. With equal reason a similar argument based on prognosis might have been (and as far as I know may have been) made against the modern operation for appendicitis in the early days of that operation.

The question of early operative treatment is associated with that of the significance of the exudate. The pancreatic secretion, from an injured pancreas, mixed with blood has a very toxic effect and in the peritoneal cavity may so affect the peritoneum as to cause death. Whether any other fatal cause, unless it be a nervous one, is at work in the rapidly fatal cases of acute hemorrhagic pancreatitis has not been determined, certainly the amount of the hemorrhage alone is not sufficient to cause death. In acute pancreatitis we have the addition of bacterial infection, for the invasion of which the local irritation of the peritoneum by the abnormal pancreatic secretion makes the way easy. Bacterial infection may be, and as a rule is, the cause of the pancreatitis. Some very acute cases of hemorrhagic pancreatitis may die before the bacterial infection has had time to affect the peritoneal exudate.

Statistics collected by von Mikulicz¹ show that drainage greatly improves the prognosis of operations for acute diseases of the pancreas. The peritoneal exudate in acute pancreatitis commonly contains bacteria of one kind or another, and the toxic and infectious nature of this exudate makes its evacuation most necessary. This is borne out by the results of early operations where merely evacuation, irrigation and drainage were employed. I have elsewhere² reported two cases of this kind and referred to five reported by others, all resulting successfully. Hahn³ strongly advocates it, stating that in collapsed patients it can readily be done under cocaine anesthesia. He warns against prolonging the operation in these collapsed patients, and if fat necrosis is present, or a very large pancreas is palpated, the operator should abstain from exploration of the intestine for obstruction.

Personally I agree with Hahn, that nothing more than evacuation, irrigation and drainage should be done in these severe cases, and this can be accomplished under cocaine anesthesia. But von Mikulicz inclines to the opinion that the operation should directly include the pancreas in order to check the further development of the disease and prevent necrosis. By analogy with acute phlegmon, he reasons, *a priori*, that we should incise the pancreas to remove tension and expose the focus of infection. In support of this he appends the report of a case so treated by Dr. C. B. Porter, at the Massachusetts General Hospital. It would seem, however, that the

operation on the pancreas itself, besides prolonging the whole procedure, adds the special dangers of operations upon the pancreas. Von Mikulicz¹ says "that the operation so far as it includes the organ itself, is much more dangerous than an operation upon any other abdominal organ," and he further calls attention to the greatly increased mortality in his operations for gastric cancer when the pancreas was involved. On this point we need more experience, but my own and that in the five other cases referred to points the other way. In three cases of my own, in which only evacuation, irrigation and drainage were employed, I fully expected to have to operate later for an abscess or necrosis of the pancreas, but in these and the other cases referred to as similarly treated no occasion arose for such an operation. In my third case the operation was delayed until eleven days after the commencement of the attack, and yet the pancreatitis resolved. Hahn's case was considered moribund at operation, yet recovered completely. The fact remains, though a satisfactory explanation of it may be lacking, that this simple operation both relieves the immediate condition and limits the progress of the disease.

The surgical treatment of chronic pancreatitis is an advance of recent date which we owe to the studies and work of Robson and others. Its occurrence is more common than that of the acute form and its etiology is generally a chronic catarrh of the pancreatic duct extending from a similar condition in duodenum or common bile duct.

If in addition to the pain and a tender spot an inch above the umbilicus prolonged jaundice appears, with or without a distended gall-bladder, a probable diagnosis can be made. Under anesthesia an enlargement of the head of the pancreas may be felt.⁴ Owing to a similarity in course, symptoms and signs, the diagnosis from cancer of the head of the pancreas may not be easy, even after operative exploration. Although the pain and tenderness are less marked in pancreatic cancer, whereas the jaundice is more intense and unvarying, the difficulty of distinguishing it from chronic pancreatitis has often led to postponing active interference in cases of the latter. Opie, Robson and others have called attention to the close relation between chronic pancreatitis and cholelithiasis, and even with the differences in the position and usual character of the pain and tenderness the diagnosis between the two is not always easy. In chronic pancreatitis jaundice is more constant, the gall-bladder more apt to be dilated, and there may also be disturbances of function evidenced in the urine and stools. As in the similar diagnostic predicament in acute pancreatitis, an exploratory operation is the proper course, and Robson has shown by a brilliant series of operations of considerable number that the condition may not only be relieved, but completely cured by indirect drainage through the gall-bladder, by a cholecystostomy or a chole-

¹ Loc. cit.

² *Annals of Surgery*, November, 1903.

³ *Transactions of the Congress of American Physicians and Surgeons*, 1903, p. 62.

⁴ *Transactions of Congress of American Physicians and Surgeons* Vol. VI, page 58.

cystenterostomy, thereby relieving the tension, congestion and inflammation of the head of the pancreas. The mortality in Robson and Moynihan's series of cases was only about four per cent. Many cases of chronic pancreatitis have been operated on under the diagnosis of cancer of the head of the pancreas or cholelithiasis and the latter may often coexist with chronic pancreatitis, as many surgeons have experienced.

Time does not allow me to speak fully of this interesting condition, or to do more than mention a few points in connection with other surgical affections of the pancreas.

Of cysts of the pancreas, the most common lesion, as far as the number of operations is concerned, our knowledge of their etiology and pathology has advanced very materially in recent years. The fact that chronic pancreatitis is the most common cause of retention cysts adds another reason for early diagnosis of and operation for the former and its common cause or associate, cholelithiasis. Pseudo or peripancreatic cysts have been shown to constitute a large proportion of so-called pancreatic cysts. Since Gussenbauer's historic case in 1882 the most common and satisfactory operation has been incision and drainage, after fastening the cyst to the anterior abdominal wall, *i.e.*, so-called marsupialization. The mortality from this operation has been but four per cent., while two of the 23 cases of enucleation have died.¹

Tumors of the pancreas give a less favorable outlook. Unvarying intense jaundice with a painless distended gall-bladder suggest a tumor of the head of the pancreas, which is by far the most common situation for cancer. Some 16 cases of removal of tumor of the pancreas have been reported with a mortality of 50 per cent., not so bad a result as the difficulties of the situation would lead one to expect. Franke² claimed to have removed the entire pancreas in a case of tumor and the operation was followed by glycosuria only from the fifth to the nineteenth day. The patient died five and a half months later. Unfortunately, these cases are left too long and are not referred to the surgeon until a palliative operation like cholecystenterostomy is the only feasible procedure.

So few cases of pancreatic calculus have been carefully observed and recorded that a typical picture of the disease cannot be given as yet. They have been met with and removed when cysts or abscess have been caused by or associated with them. One case has been recently reported by Moynihan³ who diagnosed the condition and operated successfully upon it.

In conclusion I would like (1) to urge the more general use of Hahn's method of operating for acute pancreatitis in the early stages, by evacuation, irrigation and drainage; (2) to emphasize the fact that as several serious lesions of the pancreas may be due directly or indirectly to cholelithiasis we are provided with another in-

dication for more frequently operating on the latter condition; (3) to suggest that as an exploratory operation is the only way of making a diagnosis in many cases of pancreatic disease, and as these, as well as the conditions they resemble, also demand prompt operative treatment, we should not hesitate to advise an early resort to it in case of any doubt. The diagnosis of an indication for exploratory incision is all that is absolutely necessary.

THE APPLICATION OF CONSERVATIVE AND RADICAL SURGERY TO CHRONIC NASAL ACCESSORY SINUS DISEASE.^{1 2}

BY R. B. CANFIELD, M.D.,
OF NEW YORK.

THE subject-matter of this paper has been secured by observations upon some two hundred cases of chronic disease of the different nasal accessory sinuses, treated radically, and upon one hundred and ten cases treated conservatively. Upon a minority of these cases I have had the opportunity to operate myself. I have assisted at all the remainder and have carried out the after treatment of the great majority.

Before passing to the consideration of local treatment, I wish to add my testimony to that of those who have insisted upon the treatment of the general condition. Too many argue that, if proper local measures are taken, the general condition will speedily improve. While this is true in a great many cases, it fails in a great many. It is also true that the local condition improves much more rapidly when the general health is cared for. A hospitalized patient does not heal well, and other things being equal, that method of treatment should be chosen which the soonest discharges the patient from the house.

It is conceded that some cases of chronic empyema yield to conservative measures, while others require radical ones. It is upon the percentage of those which should belong to each class that operators differ. Jansen makes the statement that if one sinus is affected, all the sinuses on that side of the head are more or less affected, and believing that, feels compelled to adopt radical methods more often than do most other men. In my experience fully one-half of all chronic empyemas of the antrum are simple, not combined. At least in a series of forty-six cases, twenty-one were uncombined. That is, disease in the other sinuses had shown itself neither by symptom nor sign. Recognizing that empyema may lie latent without the exhibition of pus, the ethmoid and sphenoid were exploratorily opened with negative result. By far the greater number of cases can be treated successfully conservatively, and recourse to radical operation should be had infrequently. Careful and accurate diagnosis and painstaking treatment will be successful in the great majority of cases. I speak of com-

¹ Ransohoff, *American Medicine*, July 27, 1901.

² *Archiv f. klin. Chir.*, Bd. LXIV, 1901.

³ *Lancet*, August 9, 1902.

¹ Read before the Eastern Section of the American Laryngological, Rhinological and Otolological Society, Fall River, Mass., Jan. 30, 1904. Presented as Thesis for membership in the American Laryngological, Rhinological and Otolological Society.

² Received for publication March 7, 1904.

plete relief in 50 per cent. of all chronic cases and in 90 per cent. of uncombined ones.

To consider first the application of conservative treatment to chronic empyema of the antrum. There are three methods: the alveolar, that of the canine fossa, and the intranasal.

The operation through the alveolus is, in my opinion, admissible only when a diseased tooth may be considered the active etiological factor, and only in such cases can it be expected to yield good results. It is applicable to uncombined cases only, and should never be considered the operation of choice. Although according to Hajek and Killian, the antral mucous membrane has no particular predisposition to infection, still the trauma caused by forcing a drill through the alveolus may be sufficient to cause irritation enough materially to prolong the duration of the disease, even to infect a previously healthy antrum, from the germ-laden mouth secretions. Communication with the mouth is in all cases to be deprecated, and the first step in conservative treatment should be to close such an opening. The strongest argument that can be urged in favor of this method is that it affords free egress of fluid pus already in the antrum. The fact that it does not afford drainage from the most dependent part of the antral floor, is sufficient to show that it does not perfectly fulfil even this duty. Then, too, pus in the antrum is not always fluid. It many times is very tenacious and stringy, and may lie fastened so firmly to the walls or roof that it is removed with difficulty, even with the forceps. The after treatment generally employed is judicious irrigation or the dry method, followed, in order to maintain the lumen of the opening of sufficient size, by the insertion of a wick of gauge, than which there is no better medium for the conduction of infective material, unfortunately, however, in both directions. If the antrum is practically dry, that is, if there is no formation of pus in the antrum itself, the upper end of the wick is nevertheless soaked with infected secretion very soon after its insertion. Then, too, as Luc has put it, the patient is forced for a long period to take his food flavored with a sauce of iodoform and pus.

What has been said of the alveolar method may be also said of the method of operating through a small opening in the canine fossa. In addition it may be remarked that here, as no caries or diseased tissue exists, as drainage is not very good, and additional infection almost certain to take place, there is no indication for this method of operative procedure. Soon the operator is confronted by the fact that he must either insert a hard rubber obturator to maintain a permanent opening or allow the wound to close. In the one case he forces the patient to wear a foreign body in his mouth for the rest of his life, while if he adopt the other measure he may reasonably expect a recurrence. To reopen the wound is to court reinfection. It is in the pursuance of these two methods that careful control is impossible, and recurrences most frequently occur. Many

times the operator, after seeing his case do well for several weeks or months, is dismayed to find not only a recurrence of symptoms, but an aggravation of the previous condition.

It is, I think, from intranasal methods that the best results from conservative surgery must be expected. To their successful use belongs not only the treatment of the sinuses affected, but of the entire nose and naso-pharynx. (This and the following statements do not refer to cases whose sole cause is an infected tooth.) Pathological conditions are always found, and it is very generally seen that permanent results are not secured until they are corrected. It is evident that a deformed middle or inferior turbinate or ethmoidal bulla may interfere with the proper drainage of a frontal, ethmoid or antrum. The fact that hypertrophic conditions are seen in almost all cases is significant. When an obstructing septal deviation exists, the empyema is found on that side toward which the septum deviates. If the posterior end of an inferior turbinate, or a mass of adenoid is seen to be markedly greater upon one side than upon the other, it is on that side that the empyema is generally to be found.

That this is not mere coincidence is, of course, granted. The question is, How far is the hypertrophy an important etiological factor in the causation of empyema, and how far does it influence its course? The hypertrophic condition, either congenital or arising from external conditions, occupation, mode of life, and so forth, particularly predisposes to influenza, diphtheria, scarlet fever, measles, and repeated head colds, which are themselves the diseases most important in the causation of empyema. It is continual sneezing, hacking and coughing that loosens the mucous membrane from the nasopharyngeal wall and predisposes to polypoid degeneration, polyps and severe infection. Nasal hypertrophy not only predisposes, but is also a direct etiological factor, and may be considered to act in one of two ways. A posterior end or a mass of adenoid may become a depot for the deposit or formation of pus, and so make a continual feeder of infective material which may find its way into any of the accessory sinuses and set up an empyema essentially chronic from the start. The condition, then, which has been so important in causation, is naturally an important agent in determining the chronicity of the disease. I can recall cases that had for months resisted treatment, some of which had gone on to radical operation with counter opening in the nose, and which continued to pour out pus for months, finally clearing up after the removal of some apparently insignificant mass of hypertrophy.

Hypertrophies act, then, as sources of infection and reinfection. They act also in another way equally important. That is, they prevent free nasal respiration, and free nasal respiration is the *sine qua non* in the successful intranasal treatment of chronic empyema. It is the failure to note this fact that compels many operators to resort unnecessarily to radical methods. It is im-

portant not only that sufficient air for breathing purposes pass through the nose, and that the patient keep his mouth closed, but that the nostrils functionate properly. According to the theory first advanced by M. Halle, of Berlin, the action of the air passing in and out through the nose is that of a chimney, drawing out the air and incidentally any secretion from the accessory sinuses through their ostia. In my opinion, this is important. In no other way can I account for the presence in the middle meatus of strings of dry tenacious pus which have made their way slowly out of the anterior accessory sinuses. It may be said that in the sinuses this pus was fluid, but dried after appearing in the nose. This may, to some extent, be true, but some of these cases, when opened radically, show just such tough strings of pus, very firmly adherent to the sinus walls. They often extend from the inner wall out through the ostium and into the nose.

Then, too, the patient, immediately after a Killian radical frontal operation, can by forced inspiration aspirate the entire serous contents of the frontal sinus backward into his throat. Nor is this aspiration confined alone to the course of the inspired air usually given in text-books. It is marked in the inferior meatus as well, as evidenced by the fact that the flow of tears can be much hastened by snuffing, and by the fact that a few grains of iodoform powder blown into the antrum soon make their appearance in the inferior meatus, if an opening be present there. To those who believe in this theory the importance of correcting any abnormalities that may interfere with free and proper nasal respiration will be evident. Drainage of the antrum by aspiration into the nose is, in my opinion, freer and as a therapeutic agent more satisfactory than drainage by any other method. This has been borne out by clinical results, for, since this theory has been evolved, cases which had previously done poorly, have, after removal of obstructing septal deviations, spurs, and so forth, made satisfactory recovery.

The first step then, in this line of surgery, is to establish free nasal respiration, and to correct any pathological condition that may exist. In attacking the antrum it is, in my mind, immaterial whether one choose the middle or the inferior meatus. Personally, I prefer the inferior. Here the bone is thicker, it is true, but there is less danger of penetrating the orbit. The inferior edge of the inferior turbinate should be removed in order to give free approach to the lateral wall of the nose. An opening should then be broken into the antrum, one-half an inch by three-quarters in size. This is easily done with an electric drill or with a mallet and chisel. A curved metal tube three-eighths of an inch in diameter is inserted into this opening, and the sinus vigorously politized. Very generally by this first inflation, pus is found, though in many cases, even when pus is in the antrum, it does not make its appearance at this time. The antrum should then be thoroughly irrigated, and again politized,

irrigated and thoroughly dried. Iodoform powder may then be insufflated. By this method it is safe to say that any pus in the antrum will be secured. It is important to note that at the time of operation, or at any time during the after treatment, although the antrum may sound dry at the first politization, it is not wise to consider it so, for small masses of pus which are the sources of infection and which must be removed are often adherent to the walls. To overlook this fact renders the operator likely to consider the antrum healthy. This is especially true where the antrum is opened for diagnostic purposes—transillumination being negative and no positive signs of antral disease being present. A second irrigation and politization are necessary to dislodge such masses.

I believe in discontinuing irrigation at the earliest moment, and resorting to the dry treatment. Regeneration of the mucous membrane must thus be better assisted. This method of treating uncombined empyemas of the antrum appeals to me. The use of the electric drill is almost painless, quick and easy. It makes an opening large enough, so that the after-treatment can be carried out without discomfort and in great part by the patient himself. In favor of this method of treatment is the fact that this opening may be maintained without danger of reinfection, and that careful control is thus made possible. It should prove satisfactory in certainly not less than nine out of ten cases.

The cases which do not clear up are combined, in my experience, generally with the ethmoid. There is no doubt that the ethmoid serves as a source of infection in the great majority of obstinate combined empyemas, and in all obstinate cases should be most carefully examined. If the ethmoid is involved, removal of the anterior half of the middle turbinate exposes several of its cells. If care be taken, operating at each sitting only so far as the field is clearly visible, ethmoids of small size may be very well cleaned out through the nose. An invaluable aid is the speculum of Killian for median rhinoscopy, by which the different openings of the ethmoidal cells can be very clearly seen and the points of pus detected. Free daily use of the soft probe often detects infected cells not before suspected. Thoroughness in operating on the ethmoid is most important in determining the degree of success to be obtained. The anterior two ethmoidal cells and those extending over the orbit cannot be reached through the nose. In cases which do not yield to this much surgery, the frontal sinus is probed, catheterized or politized as may be possible.

In extensive ethmoidal disease involving the posterior cells, the sphenoid is at once suspected, and must be examined. The first step toward inspection of the sphenoid is the thorough removal of any septal deviation obstructing the view of the sphenoidal orifice. The opening can then in a large percentage of cases be made out. For narrow noses, where the ostium is invisible,

is suggested under cocaine and adrenalin, the use of a soft, slender silver probe, bent somewhat like a eustachian catheter, but with a more uniform gradual curve. This probe is inserted, convexity upwards, between the septum and middle turbinate, and pushed gradually upward until it rests against the cribiform plate. It is then pushed gently backward until the posterior pharyngeal wall is felt. It is now in the immediate neighborhood of the sphenoidal opening. A little manipulation very generally succeeds in passing it into the sinus. Hypertrophic turbinates do not obstruct as the probe is passed above them, and septal deviations, whether cartilaginous or bony, do not extend so high. The perpendicular plate of the ethmoid immediately below the lamina cribrosa rests almost always in the median line, so that approach to the sphenoidal orifice by this route is free.

If neither polyps or granulations can be felt, the patient may sit for ten to thirty minutes, the probe in position, and head bent forward, in the hope that any pus present may make its appearance on the probe. If this procedure is negative a slender canula following exactly the curve of the probe that has already been successful, is inserted. The sinus is catheterized and a very fair idea of its condition is secured. If it be found diseased, the entire anterior inferior wall is removed, and the sinus wiped out with cotton-carrying forceps. Great care must be taken to remove the entire wall to prevent the formation of exuberant granulations and scar tissue. By removing this wall completely the annular contraction around the orifice frequently so troublesome is largely obviated, that is, until the sinus is healed, after which it may be allowed to take place. This, of course, presupposes the correction of any septal deviation toward the affected side, and is greatly facilitated by the Killian speculum, which can be inserted almost to the posterior pharyngeal wall. The obstinate sphenoidal empyema is almost always combined with disease of the posterior ethmoid cells, so that they must always be considered together.

So far can one go along intranasal lines, and not until so much has been done, carefully and painstakingly, is one warranted in considering radical surgery. The first end to be secured is the alleviation of distressing symptoms, such as pain, headache, neuralgia, sense of head pressure and of illness. These are always greatly improved by the first evacuation of pus, which can be accomplished quite as well and with much less cost to the patient by conservative as by radical methods. It is only when there is present malignant growth, caries, cerebral symptoms, or imminent danger of fistula formation that one may proceed at once to the greater operation. One should never resort to radical surgery because the symptoms are severe, the pus foul, and the physical depression profound. It is not by any means true that the most chronic cases are always the most difficult to treat, and are those to require radical measures. One should not con-

sider that because the patient has had a foul-smelling empyema for twenty years that it will not yield to conservative methods. Many authors have expressed surprise that antra that have discharged a most fetid pus for years should clear up completely after being irrigated a couple of times. The reason for an apparently remarkable cure is not far to seek. They belong to what Avellis calls "Eiter-Rest-" Empyema (empyema due to traces of pus), and owe their condition to the fact that after the acute inflammation has subsided the pus loses its virulence, lies stagnant in the cavity, forming slowly and being slowly discharged. The mucous membrane assumes a certain tolerance of its presence, and absorbs it with reluctance. The chief evidence of this condition is a desquamation and caseation of the antral epithelium, similar in odor and appearance to the cholesteatome of chronic suppurative middle-ear disease. As long as the natural antral orifice remains patent, the material makes its escape easily, especially at night. It is only when the orifice becomes occluded by dried pus or by some other means, that the antrum becomes filled with a semi-solid, remarkably foul, cheesy tumor that may, and sometimes does, perforate the antral wall, generally the anterior one.

When now it becomes necessary to resort to radical operation, there seems to me to be but one method to pursue. I have classed the intranasal operation, described by Dr. Curtis before this society last year, as a conservative one. When one chooses to operate radically, he feels the necessity of securing a free and comprehensive view of his operative field. This can be secured only by operating through the canine fossa. I have said that, in general, only combined empyemas require radical measures. Therefore, in operating upon the antrum, that operation should be chosen which exposes for examination and treatment not only the antrum, but also those sinuses in combination with which it is most frequently diseased, namely, the ethmoid and sphenoid. For this purpose the Kuster operation is insufficient, and the so-called Luc-Caldwell operation, or some modification of it, should be chosen. The one that appeals to me the most strongly is the one employed by Jansen, though I differ from him in some points that seem important.

The operation is as follows: (1) Careful cleansing of the teeth; (2) shallow anesthesia; (3) insertion of gauge strips between the cheek and the superior and inferior rows of teeth, to prevent hemorrhage backward into the throat.

Operation.—(1) Incision through the mucous membrane and periosteum, just above the tooth line from the first molar to the first incisor. (2) Retraction of the periosteum and resection of the entire frontal wall of the antrum. (3) Careful inspection of the antrum, its walls, mucous membrane and contents. (4) More or less thorough erosion of mucous membrane. (5) Removal of the median wall by means of forceps. (6) Curettage of the ethmoid through the area correspond-

ing to the insertion of the middle turbinate. (7) Inspection of the previously treated sphenoid and removal of any pathological contents, with resection of the entire anterior-inferior wall. (8) Formation of the mucous membrane flap and counter-opening into the nose. (9) Loose packing in the antrum, ends extending into nose. (10) Suture of the mucous membrane flap to the median end of the initial incision. (11) Complete suture of the initial incision for primary union.

In commenting upon this operation, I wish to say that a thorough and comprehensive view of the antrum, ethmoid and sphenoid is secured. The importance of leaving as much mucous membrane as possible is great. Knowledge of the pathological conditions existing in chronic antral disease, and the success of conservative methods of treatment, leads one to infer that much of the mucous membrane always removed during radical operation would, if allowed to remain, regenerate. If there is doubt in the mind of the operator concerning the viability of mucous membrane, it should not be removed. It can do no harm, and even the smallest bits shorten the duration of the after treatment. By this method of treatment, one or two anterior ethmoid cells are always found that could not be reached through the nose. In large ethmoids there still remains another anterior cell and some extending over the orbit that cannot be reached even by this method.

The mucous membrane flap may be made in two ways: An incision anteroposteriorly along the inferior edge of the attachment of the inferior turbinate is made; another along the floor of the antrum; these two are joined posteriorly. The flap thus formed is about one-half by one and a quarter inches. It is turned into the antrum and its tip sewed to the buccal mucous membrane in the line of the initial incision and near its median end. The second method is that used by Killian. It is as follows: The first incision is the same as the first incision of the other method—along the attachment of the inferior turbinate. From the anterior and the posterior ends of this incision two short ones are made vertically downwards to the floor of the antrum. The flap thus formed is turned down over the antral floor and held in position by one suture. The second flap is somewhat larger than the first, and is especially adapted to cases in which the anterior wound is to remain open, as the removal of the gauze packing through the nose is likely to loosen it. The packing in the antrum should be loose, arranged carefully, and when the primary incision is closed, should be led by two strands well into the inferior meatus. Else it is removed with difficulty, and may even require a primary anesthesia. It should remain five days. Care must be taken to smooth the edges of the bone opening to prevent the formation of exuberant granulations and possibly gangrene of the flap. The sphenoid should not be packed. If it is carefully wiped out at the time of operation, the hemorrhage from this point will generally be slight, and if it does

occur, it is safer to let it bleed than to fill the sinus with gauze.

The relation of the sinus to the optic nerve and brain is so intimate, its walls so paper-thin, even containing dehiscences, that pressure upon the bleeding points of the small branches of the sphenopalatine arteries that nourish the lateral walls may cause the backing-up of blood, elevated pressure, permanent injury to the optic nerve, or even hemorrhage into the cranial cavity, as I have seen occur.

The gauze packing is removed on the fifth day, through the inferior meatus if the buccal wound was sutured at the time of operation, otherwise through the opening in the canine fossa.

The after treatment consists in a judicious use of irrigation, politizerization, and the dry method. Its duration is variable, and extends over a period of months, depending largely upon the care with which it is carried out. After the first ten days the patient, properly instructed and furnished with a suitable tube, can carry it out at home. Here again it is important to irrigate as infrequently as possible to assist the formation of new mucous membrane and scar tissue, and to prevent the formation of exuberant granulations. If these granulations form at the osteum of the sphenoid, they can be removed with a sharp spoon. In the most troublesome cases they form in the antrum, and may require even a reopening of the primary incision. Despite this fact, in all cases where it is deemed possible, the anterior wound should be closed, else the antrum becomes merely a very slowly healing depot for the reception of infective material and food. There are cases of caries, perforation and malignant growth, where the wound must remain open. In these the healing is facilitated by the early application of large Thiersch grafts, the larger the better. Packing should be discontinued early, or as soon as the grafts have taken. The granulations may be kept down by silver, and the buccal wound closed with a plug of cotton. Even after the wound has entirely healed, a roll of cotton, which can be changed at will, will generally be found to be more agreeable to the patient, and to cause less irritation to the mucous membrane than a hard rubber obturator.

Not only does an unclosed antrum serve as a receptacle for infective material, but it also often causes most unpleasant subjective symptoms, such as sensations of pain, cold, lightheadedness and occasional vertigo, which may persist.

The fact that cases of combined empyema of the antrum, ethmoid and sphenoid, which resist careful, conservative treatment, are generally those with large atypical ethmoids which are difficult, dangerous and sometimes, even by this method, impossible thoroughly to eradicate, renders doubtful the prognosis for absolute recovery, after even the most radical antral operation. These cells must be approached by another route—by an external operation generally through the frontal sinus.

Many different methods for operating upon

the frontal sinus have been advocated, but most of them have fallen into disuse. In the case of this sinus one should resort to radical methods with the greatest reluctance, and it is unfortunately here that the least can be done conservatively. In proceeding radically, one presupposes that every effort along conservative lines has been made, that neither the antrum nor the sphenoid is the cause of the continuance of the frontal disease, but that it must lie either in the frontal sinus itself or in the orbitofrontal or anterior ethmoid cells. The anterior ethmoid cells open either into the infundibulum or into the frontal sinus, and clinical experience bears out the statement that these are always infected together. The former is generally the source of the sinus disease. The operation chosen for the relief of this condition must be one to expose thoroughly both these areas. I shall consider three methods of procedure: (1) that of Hajek, the object of which is to secure drainage of the sinus; (2) that method by which the frontal sinus is to be obliterated by the formation of granulations, and by packing; (3) Killian's operation for the obliteration of the sinus without packing.

To consider the first briefly, an incision is made through the soft tissues and periosteum, passing through the eyebrow from its temporal to its median end. From the median end a second incision passes vertically upwards to the superior margin of the sinus previously determined by the Roentgen ray. An osteoplastic flap, corresponding to the anterior wall of the sinus, is then cut and turned back in the soft tissues. The entire mucous membrane is erased, bony septa removed, and the walls of the sinus smoothed off. The nasofrontal duct is enlarged as far as possible, the remaining ethmoid cells are excavated, and the sinus cleansed. A conical drainage tube is inserted into the opening between the sinus and the nose, and the wound sutured for primary union. The tube is to remain in place for at least three months, and is to be removed through the nose. It is as large as can be conveniently inserted, and sufficiently conical to hold it in position. From time to time during the after treatment it is gently drawn up and down to prevent its becoming adherent. The object in this operation is, of course, to prevent deformity and preserve the sinus, as well as to eradicate disease. In the first two the operator is generally successful. Deformity is practically absent; however, out of seven cases, Hajek reports two recurrences at eight and nine months after the operation, respectively, and while still under daily observation. These recurrences occurred unexpectedly and without symptoms. The other five cases are recent and still under treatment.

Against this method of operating there is urged in the first place that the necessity of wearing the drainage tube for three months is decidedly unpleasant. Hajek claims that epidermatization takes place readily around it, and that any granulations may easily be controlled with silver ni-

trate. Considerable contraction must surely take place, however, after its removal. Again, it would seem that the condition in the frontal sinus that existed before operation might again obtain. One of the chief causes of the chronicity of the disease is the deposit of small pockets of pus in the various irregular recesses of the sinus, their inspissation and subsequent formation of fibrous tissue septa. The resulting chamber-building prevents perfect drainage and tends towards recurrence. It is quite possible that with a wide communication with the nose, this reinfection and secondary chamber-formation might again occur.

The second method, that in which granulation formation from the bottom is desired and packing is to be the after-treatment, may be carried out as follows: (1) An incision through the eyebrow from its temporal to its median end, curving downward over the frontal process of the superior maxilla and cheek. (2) Frontal sinus entered through the anterior wall near the median line. (3) Formation of a narrow linear incision through the bone from the opening along the supraorbital ridge to the external boundary of the sinus. This is easily made with Doyen rongeur. (4) Enlargement of the two extremities of this incision so as to receive the jaws of the two rongeurs, by means of which the anterior frontal wall is broken off in the soft tissues to form the osteoplastic flap. The soft tissues and osteoplastic flap are then held back by a retractor which must be managed with considerable care to prevent injury and possible loss of the bone flap. (5) Removal of the floor of the sinus and inner wall of the orbit. (6) Complete erosion of the frontal mucous membrane and eradication of bony septa. (7) Curettage of the ethmoid. (8) Inspection of the sphenoid. (9) Careful cleansing of the sinus and insertion of iodoform packing. (10) Replacing of osteoplastic flap and suture of the primary incision. The center stitch and gauze to be removed on the fifth to the eighth day. Packing is then carried out through the central third of the incision, the external and internal thirds remaining undisturbed.

By this operation anterior ethmoidal and orbitofrontal cells that had escaped observation at the time of the radical antral operation are exposed. A free view of the infected sinuses is secured. Indeed, a more radical operation could scarcely be performed.

As to its after-results: First, upon the eye.—In a large percentage of cases no evil effect is noted. On the other hand, in many cases, more or less unpleasant conditions result. One symptom complained of is diplopia which follows the complete or partial loosening of the pulley of the superior oblique muscle from its bony attachment. If temporary, this diplopia lasts from seven to fourteen days; it may be permanent. Another symptom is dimness of vision, which may result from excessive lacrimation. This lacrimation is due either to ptosis and consequent faulty situation of the superior lacrimal punctum or to permanent induration at the in-

ternal angle which presses upon the lacrimal duct. Another and more serious dimness of vision results from injury to the eye itself. This may be the result of an acute iritis set up at the time of operation by pressure upon the eyeball by the retractor. This iritis may run the usual course and disappear without sequelæ, or develop into a chronic condition, evidenced by no pain, slight injection and considerable impairment of vision. Again, dimness of vision may be due to a condition which I have noticed in two cases of amblyopia following this operation. It is evidenced by a very slight injection of the nerve head and loss of its clear outline. Its fibers melt off indistinctly into the retina, especially upon the nasal side. The trouble, therefore, seemed a traumatic neuroretinitis. Vision in one case was one-thirtieth, in the other one-fifteenth. The refractive media were clear. The only abnormalities present were the ones described. In both cases the amblyopia had persisted two years.

Second, cosmetic results: Small frontal sinuses yield the best cosmetic results, for the osteoplastic flap is smaller and any displacement consequently less noted. Packing also need be continued for a shorter time. Unfortunately, accidents sometimes happen to the bone flap at the time of operation or later. It may be lost wholly or in part. During the formation of granulation tissue and subsequent retraction the upper edge may become adherent to the posterior wall of the frontal sinus and cause the lower edge to tilt forward. Both these accidents are difficult to prevent and naturally have a bad effect upon the cosmetic result. They may even require secondary or tertiary operations, which do not yield brilliant results. Another unpleasant result, which sometimes occurs, is a permanent induration in the neighborhood of the inner canthus. This can be somewhat obviated by gentle massage after the scar is firm. Again, continued packing of a wound so difficult to bandage properly and where it is desirable to expose the eye at the earliest possible moment renders infection very probable. I have seen cases most carefully treated granulate nicely from the bottom and only after a couple of months be found filled with pus. Such infection always makes an ugly scar.

Keeping the lips of the wound separated allows the lower lip to drop down and more or less pronounced ptosis of the upper lip to result. The longer the packing, the greater the chance for reinfection, for ptosis, for induration, the greater the depression and the wider the scar. The shorter the duration of the packing, the less firm the granulation, the greater the danger of recurrence.

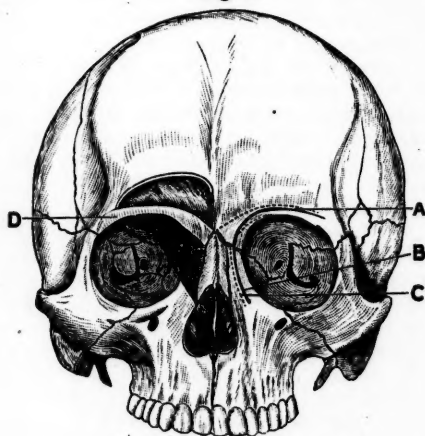
There is to be urged in favor of this operation that it is radical and permits as far as possible the eradication of the diseased condition. Against it is urged that it requires months of observation, packing and treatment, that the cosmetic result is doubtful, while injury to the eye is possible.

There remains to be considered the operation of Killian. Inasmuch as there exists nowhere in

the literature a perfect description of its technic as it is now performed by him, I will describe it in detail.

(1) Mark the line of incision with a sharp scalpel; incision begins at the temporal end of the eyebrow and is carried through it to the root of the nose, dividing the nasal section of the *musculus quadratus* in the center of the frontal process of the superior maxilla. It ends in a oblique curve outward below the base of the nasal bone. (2) Periosteal Incisions.—*a.* This incision is made five to six millimeters above and parallel to the supraorbital margin. From the temporal end of the skin incision to the suture between the upper ends of the nasal bones. *b.* The lower periosteal incision follows the course of the skin incision, beginning just median to the attachment of the pulley of the superior oblique muscle. (3) Puncture the frontal sinus just above that piece of bone included between the periosteal incisions. Retract periosteum, chisel through the anterior wall of the frontal sinus, exposing but not per-

Fig. 1.



Killian's Operation Illustrated.

A, upper periosteal incision; *B*, skin incision; *C*, lower periosteal incision; *D*, bridge of bone.

forating its mucous membrane. (4) Determine the size of the frontal sinus by means of a probe, moving between the bone and the mucous membrane. (5) Excise the front wall of the frontal sinus completely. (6) Erase mucous membrane. (7) Remove the floor of the sinus without injury to the supraorbital margin. While doing this, the operator stands behind the head of the patient. (8) Remove the frontal process of the superior maxilla and the remaining part of the sinus floor. Remove the frontal process without injury to the nasal mucous membrane. (9) Excavate the ethmoidal cells and sphenoid, if necessary. (10) Make the mucous membrane flap from the uninjured nasal mucous membrane. At the edge of the nasal bone perforate the nasal membrane by a pointed scalpel. By means of a probe-pointed scalpel continue the incision upward and backward one-half centimeter below the cribriform

plate, then downward. This flap of the mucous membrane is turned outward and used to cover those parts of the wound facing the nasal cavity. This establishes a permanent communication between the frontal sinus and the nose. (11) Cleanse the wound with salt solution, dust with iodoform; suture the incision for primary union. (12) After-treatment. Place the patient on the healthy side; forbid him to blow his nose. He must aspirate the secreted fluid of the wound. Daily dressings. By no means flush the nasal cavity.

Procedure for radical operation of both sinuses is the same as for the operation upon one side. Begin by removing the front walls of both sinuses and remove the interfrontal septum.

COMMENTS.

The skin incision in this method is made with the greatest care and precision. It is very long and to prevent deformity and to secure perfect coaptation, attention must be paid that corresponding parts are brought into apposition. To accomplish this, it has been suggested to make little nicks at right angles to it, after its course has been marked out by the scalpel. It is not necessary to shave the eyebrow. Its presence is a valuable landmark, and it can readily be disinfected. Stitch abscesses do not occur in the orbital part of the incision, but when present are found in the dependent portion. Care is taken not to weaken the bridge of bone between the periosteal incisions by undue pressure at the time of operation, as its displacement or loss is followed by marked depression and deformity. The periosteal incisions are made with exactness. The length of the lower one has recently been changed, as it was found that loosening of the pulley of the superior oblique muscle sometimes occurred when the line of incision extended clear to the temporal end of the skin incision as it formerly did. Beginning, as it does now, median to the attachment of the pulley it has no such effect.

Attempt is made in all cases to prevent puncture of the mucous membrane of the frontal sinus as long as possible. The size of the sinus can be made out by means of the probe passed along under the bone, but outside the membrane. Unnecessary infection of the sinus cavities and wound edges is thus avoided. The anterior wall of the sinus is thoroughly removed. Any overhanging edges are taken away and left perfectly smooth as in persons with transparent skins and deep sinuses the edge is for some time plainly seen. Attention is paid to the most thorough erosion of the mucous membrane of the sinus, including the under surface of the bone flap. By standing behind the patient while removing the sinus floor the pulley of the superior oblique is avoided. Even though the bone flap is left in position the ethmoid and sphenoid are as readily accessible by this as by any other method.

The formation of the flap from the mucous membrane of the middle turbinate and the lateral wall of the nose is important as it assists material-

ly in preventing formation of exuberant granulations and shortens the after-treatment. Atropine is instilled into the eye at the close of the operation, as a prophylactic against iritis. In this operation also especial attention must be paid to the eye. Pressure against the eye ball is to be avoided as far as possible. I think the narrower the retractor, the less the danger to the eye. The cosmetic results as far as I have been able to see have been very satisfactory. Below the bone flap there is absolutely no depression. If no stitch abscesses occur, the scar is very slight. The bridge of bone prevents loss of contour of the orbit. Removal of the entire sinus floor allows the orbital fat to push upwards so as to fill the depths of the sinus. The question arose in my mind, whether this change in the orbital pressure might not cause some anomaly in the tension of the extraocular muscles, but careful test of one case showed no heterophoria.

There is for several days after the operation more or less flat depression above the supra-orbital bridge. However, by the formation of new granulations and the pushing upward of the orbital fat this is but slight and grows steadily less. If it remains noticeable it can be relieved by a subcutaneous injection of paraffin.

The statement made by Killian that he cures his patients without deforming them seems justifiable. The after-treatment is very simple. For several days the serous contents of the wound is expressed into the nose and aspirated backward by the patient. During this period of convalescence he is not allowed to blow his nose, lest he fill the wound cavity with the mucopurulent secretion of the nose or possibly cause an emphysema.

Finally the posterior surface of the soft tissues becomes adherent to the posterior frontal sinus wall. When this has taken place the patient may be considered to be more definitely healed than if his sinus were filled with a mass of granulation. After a few weeks a probe can be passed through the nose into a small cavity about the size of a hazelnut. The frontal sinus itself is completely obliterated.

CONCLUSIONS.

I have permitted myself to draw the following conclusions. Conservative methods are successful in nine out of ten uncombined cases and should always be given a thorough trial before recourse is had to radical ones. Uncombined empyemas are not uncommon. Difficulty in healing is not always in direct portion to the duration of the disease. Drainage of the antrum is most satisfactorily secured through the nose. The ethmoid is the chief cause of the chronicity of obstinate combined cases. The sphenoid is readily accessible through the nose in a large percentage of cases. It can be probed in 90 per cent. of cases by the method advised. The establishing of free nasal respiration is an important factor in securing permanent results. The radical operation should be resorted to infrequently. The best radical antrum operation

is the modified Luc-Caldwell. The best frontal operation is that of Killian. Frontal sinus operations not closed at the time of operation cause deformity. Great care must be taken of the eye at the time of the frontal operation. Accidents to the eye are: (1) Loosening the pulley of the superior oblique causing diplopia, and (2) dimness of vision due to (a) extraocular causes—lacrimation, conjunctivitis; (b) intraocular causes—iritis, neuroretinitis.

TREATMENT OF LOBAR PNEUMONIA IN THE ADULT.¹

BY WILLIAM H. DUKEMAN, M.D.,
OF LOS ANGELES, CAL.

ACCORDING to available statistics, in private practice the mortality in pneumonia ranges from five to 20 per cent., and in hospitals the mortality ranges from 20 to 50 per cent. In southern climates the death rate is higher than in the temperate climate.

After fifty years of age, the death rate is exceedingly high. The habits of the patient and the condition of the bodily health at the time of the attack are the most important factors at all ages in regard to the death rate. In individuals debilitated, either from bad habits, other diseased organs in the body, or undermined health from overwork of body or mind, the death rate is very high, while in healthy, robust individuals, the death rate is as low as from three to five per cent. In children, the mortality after the first year is small.

In summing up the mortality for all ages and under all conditions, the death rate is very high, ranking next to tuberculosis and causing more deaths than diphtheria. Like typhoid fever, the more heroic has been the treatment in the past, the higher has been the death rate. As we have no specific for either disease, the treatment resolves itself, as in typhoid, to be wholly symptomatic and supportive, and a rational line of treatment must be outlined.

By the time the physician is called to see a patient with an attack of pneumonia, the pneumococcus has invaded every avenue, and as there is at present no reliable or trustworthy antipneumococcic serum, we must confine our treatment to meet indications as presented and we must therefore be prepared to meet promptly any emergency that may arise. I, therefore, at once order to be delivered to the sick room, a 200-gallon tank of oxygen, one ounce aromatic spirits of ammonia, one ounce tincture digitalis, mustard plasters, and a cotton jacket to be made to encase the chest and put on the patient as soon as completed. The patient is placed in a large, airy room with plenty of sunlight, the bed so arranged to keep the patient out of draughts, for we require in this disease a free circulation of fresh, pure air both day and night. If the tem-

perature is too cold, artificial heat is supplied to keep the temperature of the room at about 65° F. and a good nurse in constant attendance; no one else should be allowed in the sick chamber; quiet and rest are essential to recovery.

The existing toxemia calls for our first attention, and could we but rid the system completely of this toxemia, I am satisfied many of the serious symptoms which we may be called upon later to combat would be greatly modified or would not ensue.

To combat the toxemia, the skin and the bowels are the main avenues through which this may best be accomplished. If called to see the patient in the first stages, the skin must be acted on, not by the administration of drugs internally, but by opening up the pores by giving a good sponge bath of hot water, using plenty of soap, and then giving a hot foot bath containing mustard. This latter can best be accomplished while patient remains in bed well covered, by the placing of a small tub containing hot water and mustard under the blankets and with the knees flexed and feet in the tub, the blankets are well tucked around him. At same time I have administered a large draught of hot lemonade, which very materially aids free perspiration. The patient to remain in above position for half to one hour; when free perspiration takes place. He is to sweat for about half an hour freely, when he is to be dried and rubbed well with coarse towels to get up a good cutaneous capillary circulation. This greatly relieves the congested and dilated capillaries of the lungs and modifies, to some extent, the amount of inflammatory exudate, at same time reduces any existing high temperature. The chest is now encased in the cotton jacket and should the patient complain of any pain over seat of inflammation, a mustard plaster is placed over same and after this is removed, the chest is well oiled with camphorated oil, which is not only soothing but gives off an agreeable odor to the patient and somewhat soothes and relieves the embarrassed respiration.

The bowels are now to be acted on by the administration of two or three grains of calomel given in divided doses of half a grain every half hour, to be followed in six to eight hours by a Seidlitz powder or dose of Epsom salts. When this is accomplished we have succeeded in relieving very materially the engorged blood vessels and especially the portal and pulmonic congested circulations and any distention of the right heart, and the pulse, though frequent, will be soft and compressible, and the temperature lowered.

The action of the kidneys is best kept up by the free administration of pure water at the temperature of the room. It is a serious mistake to administer stimulating expectorants and diuretics. The least medicine given the pneumonic patient the better are his chances of recovery. To give medicines to excite too great functional activity in the already inflamed lungs or kidneys is absolutely contraindicated. The stimulating expectorants absolutely have no place in lobar pneu-

¹ Received for publication March 7, 1904.

monia. The kidneys being more or less involved in every case of pneumonia, dry cupping over the kidneys is all that is required. The teeth and mouth must be kept sweet and clean by the frequent and thorough cleansing of the same with an antiseptic solution.

To aid in the elimination of the toxemia, mild action of the bowels should be kept up, either by a daily dose of a mild saline aperient or aided by an enema of warm sterile water. The action of the skin should be maintained by the daily sponge bath of tepid water and soap.

The diet should consist of plenty of pure water at the temperature of the room, and all food should be liquid—chiefly milk. If the stomach is weak, the milk should be peptonized and be given in small quantities, not over four to six ounces at stated intervals of every three hours. Overfeeding must be avoided, as this would embarrass both respiration and circulation. If only one lobe is involved, our patient may go on to recovery without any further treatment, but if a large surface be involved or a double pneumonia exists, our skill will be taxed to the limit. The heart will be the first to need our most careful attention. Heart symptoms may develop at an early stage and the attending physician should make frequent visits to be able to recognize its earliest appearance. The nurse must be instructed and be on the alert at all times, never leaving the bedside, that she may recognize any wavering of the heart action.

The treatment of pneumonia here is the treatment of the conditions presented, not the treatment of the lungs, but the stimulation of the heart and the elimination of the toxemia. To help ward off heart weakness, I usually commence the early administration of one-sixtieth grain of strychnine hypodermically every four or six hours according to amount of lung surface involved and the condition of the circulation, and gradually and systematically increase the dose to one-thirtieth or one-twentieth grain, as circumstances demand. Strychnine acts powerfully upon the vasomotor and respiratory centers, increasing their activity, and we must not push the remedy too strongly, for strychnine is also a powerful narcotic and is also a stimulating expectorant and we may, at certain stages of the disease, increase the engorged condition of the lungs. We, therefore, should watch its action as closely as we watch the action of the wavering heart. This is why we are sometimes disappointed in the action of strychnine when it fails to strengthen the heart's action at a critical time. It is here that alcohol in the form of good rye whisky or pure brandy, in doses of one-half ounce, diluted in water, supported by five minims of tincture of digitalis, is called for and the strychnine continued in moderate doses. Should we need a more quickly acting stimulant, 30 minims of the aromatic spirits of ammonia with five to ten minims of tincture of digitalis, given in water, is called for.

I wish here to say that too heroic doses of strychnine are a mistake for the reasons above

given, and if the ordinary or moderate doses do not meet the desired aim, I can justly say I have never accomplished any good results by having resorted to heroic doses.

In those cases especially where the fever runs high and there is little or no delirium, and where the heart sounds particularly the second pulmonic has lost its force, one-half ounce of whisky or brandy repeated every three hours, if the patient rests more quietly after its administration, is doing good, but should the patient become restless, it is not doing good and must be discontinued. Here is where the tincture of digitalis in small doses proves beneficial. By small doses, I mean five to ten minims in a little cinnamon water or given in conjunction with the brandy every four or six hours.

Should cyanosis appear at any time, small drinks of champagne or the aromatic spirits of ammonia in doses of 30 minims in water is called for promptly, a mustard plaster placed over the heart and the continuous inhalation of oxygen gas. For several years I have placed much reliance in the administration of oxygen. Not as it is usually given, as a last resort, but its administration throughout the course of the disease from the time of the engorgement of the inflammatory exudate to the end of resolution. The oxygen tank is by the bedside with tube and mouthpiece attached, ready for its administration. Five gallons is given every three to six hours, from the beginning of the attack, unless otherwise called for more frequently and in larger quantities. The blood must have oxygen and when the lung or lungs are engorged with the inflammatory fibrous exudate and a vast area of the air vesicles obstructed so that the blood is very poorly oxygenized, the whole system is weakened, the toxemia is increasing, the muscles of the heart become so poisoned with the toxemia and weakened and worn out from the overwork cast upon it from an obstructed circulation that it needs something more than a whip, like stimulants, to keep a lame and crippled organ in motion. Oxygen helps to prevent, to a great extent, this condition, by keeping the blood better oxygenized, thus holding in check the increasing toxemia and thus assisting the heart to better fight its battle. At times it becomes necessary to give the oxygen continuously for hours, until the embarrassed heart and respirations show improvement and the cyanotic condition disappears. Oxygen, given throughout the course of the disease, and a plenty of it in the manner here outlined, can do no harm, but I can assure the reader that it will do much good.

I have avoided discussing the treatment of complications, as this would carry me into writing a much longer paper than is here intended.

With the treatment as above outlined and intelligently followed both by scrupulously observing changes occurring in the course of the disease and the usage of good judgment in applying the proper remedies, the rate of mortality should be much reduced.

GASTROPTOSIA.¹

BY A. ROSE, M.D.,
OF NEW YORK.

GASTROPTOSIA, not Gastroptosis,² is a subject of vast importance, as has been proved by the avalanche of literature it has caused during the last decade.

The word gastroptosis, correctly translated, means abdominal ptosis, not necessarily ptosis of the stomach alone; this latter would be stomachoptosis. The word gastroptosis is a good term, for, as far as I know the literature, all writers agree that there is, as a rule, not alone one abdominal organ descended, although one may be more displaced than the other. The word gastroptosis, for another reason, is a good term, because it includes the relaxation of the abdominal walls.

The tone, the activity of the abdominal muscles aids in fixing the abdominal organs in their physiological position. Relaxation of this apparatus forms a factor in gastroptosis, and in therapy it is the first factor we have to consider.

Enteroptosis is ptosis of the abdominal viscera in general, or, so far as literary translation is concerned, it may mean ptosis of viscera, not necessarily of the abdomen alone, certainly we may understand by this term ptosis of the bowels, but this is arbitrary. Splanchnoptosis means also ptosis of viscera, not abdominal viscera exclusively. Splanchnon can, for instance, mean the heart. I simply give facts which are worth knowing when we have science at heart.

Gastroptosis is identical with relaxation, or, which means the same, with atonia; gastroptosis is atonia gastrica. Those who have used the word atonia gastrica in the meaning of motor insufficiency of the stomach have caused much confusion.

Atonia gastrica may exist without motor insufficiency.

Myasthenia gastrica is a word without any definite meaning. Motor insufficiency is the disproportion between the capacity of the muscular forces of the stomach and the demand for labor on these forces. Such insufficiency may occur under certain circumstances in a healthy stomach, when the mass of the ingested food is too large, or the nature or condition of the ingesta unsuitable. Atony may cause insufficiency, but atony is not itself insufficiency. Atony may exist without insufficiency when the resistance at the pylorus is subnormal. Atony may be caused by insufficiency.

There exists ectasia or dilatation of the stomach, which we have to distinguish from gastroptosis, but there is no gastroptosis without dilatation. Gastroptosis depends on relaxation, and relaxation of the fibers of muscles means elongation of

the fibers, therefore relaxation is, *eo ipso*, dilatation.

Glénard's whole theory of enteroptosis is based on the relaxation of the suspensory ligaments of the intestines, especially that of the transverse colon, and Stiller, the discoverer of the floating tenth rib, says that splanchnoptosis is a descent of the atonic dilated stomach, of the colon, especially of the transverse portion, the kidney, exceptionally of the liver, or the spleen; a descent which has developed mostly in tender age, in consequence of general relaxation. As a matter of course such general relaxation may be congenital or acquired.

Of practical importance is the relation between gastroptosis and gastric and nervous symptoms. We all accept now the view that many cases which formerly were classified as nervous dyspepsia are cases of gastroptosis with gastric and nervous symptoms, *ex juvantibus* any doubt can be removed.

All forms of anomalous gastric secretion may be associated with gastroptosis and as the very exact investigations of Dr. C. T. Graham Rogers, in Manhattan State Hospital, West, Ward's Island, have demonstrated, relief from anomalous secretion and motor insufficiency may promptly follow after gastroptosis has been relieved. I wish I had time to present the records Dr. Rogers had the kindness to place at my disposal showing the close relation of anomalous secretion and anomalous motor functions to gastroptosis. He confirms with scientific accuracy all I have mentioned in numerous publications.

It will simplify matters if we keep in view that the principle in the treatment of gastroptosis is relief from relaxation; first of all of abdominal relaxation, by means of support of the abdominal walls, and this can best be done in most instances by strapping in the way I have suggested.

In their enthusiasm over the study of bacterial, chemical and toxic processes many physicians of the present time have overlooked the mechanical conditions of the abdomen.

In the case of gastroptosis with gastric and nervous symptoms let us, first of all, relieve this condition of relaxation, no matter what the analysis of the contents of the stomach may show. Very often strapping of the stomach alone, without any other treatment, will restore the secretory and motor functions to a normal state. I do not mean to say that medical treatment is to be excluded in any case, but without the mechanical support all medical treatment may be in vain.

Gastroptosis may play a part in diseases of the organs of respiration and circulation.

Allow me to quote a case which I have repeatedly quoted, but which illustrates these relations to perfection.

This is a case reported by Dr. Groddeck, of Baden Baden: An elderly gentleman suffered for several years from attacks of vertigo and unconsciousness. Almost daily, sometimes hourly, and even at shorter intervals, the alarming symptoms appeared. The frequency of the pulse was

¹ Received for publication March 21, 1904.

² A feminine noun which ends in *sis*, *xis* and *psis*, as the second component, remains unchanged when the first component is a preposition, as, for instance, *proptosis*, *peritosis*, *diagnosis*; but if the first component is not a preposition, then in composition the ending is changed into *sis*, as *eupraxia*, *apraxia*, *palingenesia*, *hierognosis*, and also *gastroptosis*.

27 to 31 beats in the minute; only every second contraction of the heart caused pulsation. All the physicians who saw the case diagnosed, quite correctly, myocarditic affection and treated him accordingly, but without success. The enormously distended belly of the patient had not been taken into consideration until Dr. Groddeck paid attention to it. The reduction of the size of the belly, although it did not cure the diseased myocardium, was followed by cessation of the attacks of vertigo and unconsciousness. The size, the weight of the belly, having been reduced, the work of the heart was materially relieved to such an extent that even the imperfect contractions were sufficient to fill the brain with the necessary quantum of blood. It is sometimes of more importance in cases of heart disease to examine the abdomen than to distinguish the fine points of the auscultatory symptoms.

I could add just as striking examples from my own practice. I could refer to my experience on seeing a patient before a medical society. Every one present studies the auscultatory symptoms, but not a single one takes notice of the most remarkably pronounced gastropnoia. They all speak of different remedies to improve the circulation, not a single one has an idea of the most important of all the remedies in the case, the support of the abdomen.

A very interesting phenomenon has been observed by Mangelsdorf. He found that every attack of migraine was accompanied by dilatation of the stomach and that repeated attacks of migraine led in the course of years to permanent change in the tonicity of the stomach, and also that there existed relations of epilepsy to gastropnoia.

Many observers of the last few years have shown that gastropnoia deserves much greater consideration than has been accorded to it.

THE TREATMENT OF TUBERCULOUS TESTICLE.^{1,2}

BY JOSEPH B. BISSELL, M.D.,
OF NEW YORK.

MUCH has been written on the small and rather limited subject of the treatment of tuberculous testicle in the past decade. Surgeons of ability and prominence on two continents have published valuable articles relating to it. The disease is probably not more prevalent than formerly, but modern methods of the treatment of tuberculosis of the lungs have drawn attention to the disease as it exists in this and other organs of the body.

Before deciding upon the treatment of this diseased condition one should consider the functions of the gland and its correlated organs, and the result which various kinds of treatment and operations suggested may have, not alone upon the organ involved, but also upon the patient and upon his future health and well being. The mere removal of one or both testicles is a comparatively

simple and safe operation, but its effect upon the individual does not end with the operation and the discharge of the patient as cured. A number of cases of hopeless mental disease and some suicides have been reported as following the operation of double castration, if indeed they are not a direct result of it. A good working idea of the physiology and anatomy of the organ, together with the pathology of this infection, ought to be taken into consideration, and the physiology of the testicle as a whole must influence the surgeon in his choice of operation.

The testicle has two functions: The first, the creation of the spermatozoa; and the second, and, as far as the well-being of the individual is concerned, the most important, is the formation of the internal secretion. This function resides for the most part, if not entirely, in the gland proper. The importance of this internal secretion in the metabolism of the body is well known. We all realize the psychical and physical changes produced by the removal of both testicles. The influence of their loss is shown in cases of cryptorchism, or where both testicles are lost before puberty, grave mental states and diseases having been induced by double castration even late in life.

Dr. J. B. Murphy in an elaborate and interesting article on "Tuberculosis of the Testicle," published in the *Journal of the American Medical Association*, for 1902, gives a full and simple description of the blood supply of the organ. The spermatic artery bifurcates at the border of the epididymis, and sending in its tortuous branches, suddenly becoming very much smaller in caliber, causes a sluggish and much obstructed blood supply as compared with the circulation in the testicle itself. Tubercle bacilli in the blood current, their most common way of entering the tissue, lodge more readily in the structures nourished by this slowed and impeded circulation than in the more rapid and unobstructed current in the testicle gland. Then if the epididymis, as is frequently the case, has been the seat of a preceding inflammation, gonorrhoeal or otherwise, or of a trauma, there is a nidus ready for the development of the bacilli, and tuberculous foci appear without much difficulty. This is the theory of Saltzman, who has studied the subject carefully for some years.

The most frequent channel of entrance for this bacillus into the tissues of the human body is the respiratory tract, the next most common the gastro-intestinal; then the genito-urinary mucous membrane, and lastly the skin. But whichever way it takes to get to the place of development there must be some local condition predisposing to the growth of the microbe, and the development of the disease at this point. In the testicle it is usually found to be an old or a recent epididymitis, or an injury. That this is the cause of a spot of weak resistance in the tissues which in the presence of the germ gives rise to a focus of tuberculous tissue, has been repeatedly demonstrated.

¹ Read at the New York Academy of Medicine, Genito-Urinary Section, March 16, 1904.

² Received for publication March 25, 1904.

In the majority of the cases recorded by Murphy he found the epididymis to contain the primary genito-urinary tuberculous infiltration, or at least the dominant focus. Such being the case the surgical indication is simple, clear and imperative. The immediate removal of this lesion would save the patient from a source of infection. The author's experience and teaching agree with that of Murphy. Unfortunately a review of the opinions of many other surgeons, who have recently written on this subject, shows a preponderance of views in favor of its being a secondary infection. Orville Horwitz, in a paper on the treatment of 96 cases, found a primary infection in some, but for the most part the disease in the epididymis was secondary to foci elsewhere. Irwin Abel in two recent papers found it to be usually secondary. E. Laval finds it secondary in most of his cases. In a paper of two years ago, Dr. H. W. Morton, of Brooklyn, apparently holds similar views. Dr. Lejar, of Paris, thinks most of the cases, if seen early enough, would show a starting point in the epididymis. The English surgeons believe for the most part that the disease is rarely primary in the epididymis.

Authors differ decidedly as to whether the disease, as far as concerns the genito-urinary tract, is an ascending or descending infection; that is, beginning in the epididymis and going upward to the vas, seminal vesicles, prostate, bladder and urethra, or whether it begins in one of these locations and reaches the epididymis in descending. Cayla in one hundred post-mortem sections, concluded that tuberculous diseases in the genito-urinary system began higher up. König in 1902, reported 31 out of 45 of his operative cases where the higher points were involved. Recent observers agree in the general view that the testicle body itself is, as a rule, involved secondarily to the epididymis. If it could be proven that genito-urinary tuberculosis in every case began in the epididymis, or even in the testicle, the surgical indications would again be direct and absolute, and if followed early enough genito-urinary tuberculosis could be cured, at least theoretically.

Another important factor must enter into our consideration of treatment of this disease, that is, the prognosis of tuberculosis as it affects other organs of the human body. It is well known that the majority of the people in this vicinity have at one time or another had greater or smaller tuberculous infections. In the autopsies in this city in deaths from all causes, it has been estimated that more than 70 per cent. of the bodies showed evidences of having suffered from pulmonary tuberculosis, many of these having scar tissue at the site of the old tuberculous inflammations. We must always take into our consideration therefore the possibility of a cure of the tuberculous process "by nature" so-called.

Treatment may be divided into constitutional or general, palliative and radical. Whichever of the latter two divisions is followed, the constitutional treatment of tuberculosis is always to be carried out. In a number of cases which were not

operated upon, the patients were made comfortable for years by attention to their general health, and by means of the modern hygienic treatment for tuberculosis, carried out to the best of their ability. Nature unassisted does so much to cure tuberculosis in other organs that her efforts to prevent the growth of the bacilli in the genito-urinary tract should be helped by every means in our power before resorting to mutilations or destructive procedures. Even after we have made up our minds that it is a conservative measure to destroy or remove a certain amount of human tissues, we should still rely greatly for successful results, both immediate and ultimate, upon happily conceived and carried out general treatment, often best left to the tuberculosis specialist.

Palliative treatment is to be used where radical treatment is contraindicated. It consists principally in rest and support of the part, irrigation and cleansing of any sinus, opening and drainage of abscesses, and treatment of any symptoms which are causing temperature or distress. Mautclair's operation is on the border line between palliative and radical treatment, and in any case is useless, often harmful, and not to be recommended. It consists of excising a portion of the vascular supply of the testicle along the course of the cord. None of the various injections into the tuberculous focus recommended has been of value. Usually they increase the difficulty of proper treatment by producing a mixed infection, and finally necessitate operative interference under unfavorable local surroundings and conditions.

A palliative treatment, which seems to have great promise in it, is that held out by the use of the X-rays, radium, and the fluorescent solutions. In tuberculosis of the skin and glands the favorable results reported from this procedure promise much for the cure of tuberculosis of the testicle. My personal experience with the X-ray is disconnected and limited, and is disappointing, probably for these very reasons. Dr. W. H. Morton, of Brooklyn, who has possibly more experience with this treatment than any one else, writes me, in answer to a request of mine for information, as follows:

I have never treated a case of the organ you refer to, but I have treated a great many cases of local tuberculous glands on the neck and side of the face near the ear and upper parts of the shoulder; five cases, at least, with complete success. Some way all my cases have been of the neck and surrounding regions. There is a steady retrogression of the glandular trouble and a final cure, depending upon the use of the X-ray, though I must say I always use quinine, esculin or fluorescin at the same time, internally, and at present believe that if one can follow up the cases carefully, that the radium will do still better work than the X-ray. My own faith in the treatment of these cases and my own success has depended upon the use of artificial fluorescence. (See *New York Medical Journal*, Feb. 13 and 20, 1904.)

The well-known fact that other glands infected with tuberculosis can be restored to normal by this means is proven, and is suggestive of

help for the same disease in the genito-urinary organs, and more particularly the testicle.

The radical treatment consists in operations of two classes. Orchiectomy or epididymectomy, either of which may be partial or complete, and either may be combined with excision of the whole or part of the vas, together with exsection of the seminal vesicles, if one wishes to go that far. Orchiectomy with removal of the vas is the most complete, especially if the seminal vesicles are removed at the same time.

Castration is easy of accomplishment, and the immediate result is good, at the worst a temporary sinus may remain, usually closing in a few weeks. But the ultimate result to the patient is not always satisfactory. The possibility of grave mental disease as a result of castration is always present. A patient deprived of both testicles, as stated earlier, is mutilated by more than the loss of his fecundating faculty. The mental impression created by such loss is not all the harm done him, serious as it is. The loss of the testicles carries with it the loss of the internal secretion, which is necessary to the health, mental and physical, of the normal male. The removal of one testicle destroys this to a certain degree. Moreover, it is not usually necessary in order to remove the tuberculous foci to take out the testicle. It has been shown by such observers as König, Cayla, Duplay, Lejars, Senn, Horwitz, Murphy and others that the lesions as a rule reach the testicle body last of all. Dr. Lejars goes so far as to save all of the body of the testicle possible, excising portions where it is infected and suturing together healthy edges of the rest of the gland, thus preserving as much of it as possible for the sake of this internal secretion.

After removing the diseased epididymis, Dr. Lejars in suspected cases does an exploratory orchidotomy, and if any nodules are seen they are excised, the cut edges brought together with buried sutures and the halves of the split testicle reunited. If it is decided to do so, after an epididymectomy or orchiectomy the vas can also be removed by following the cord to the inguinal canal, pushing back the peritoneum by a blunt dissection down to the posterior surface of the bladder, and exsecting the structure, a painstaking and somewhat tedious dissection. The cord, if diseased, is indurated and thickened, and can be easily followed.

Von Brunnen's procedure of grasping the cord after dissecting out the testicle, and pulling by main strength, thus avulsing it deeply from its attachments, seems to be unsurgical and dangerous, as likely to produce hemorrhage and possible infection. It is condemned by Murphy and by Horwitz.

There remains then for the surgical consideration the operation of epididymectomy. The removal of the diseased epididymis has these advantages. It does the least damage to the testicle functions and to the health of the patient. It removes as a rule the foci of disease. It does not destroy sexual vigor. If the disease is of the as-

cending variety the operation, if done early, is an absolute cure. Even after the vas and the seminal vesicles are indurated and enlarged, the vesical, vesicular and prostatic symptoms are relieved and the tenderness and induration in the cord disappears, or nearly so following this operation. This is explained by the fact that the function of the cord ceases, and therefore its activity. At the same time the infective products, derived from the tuberculous epididymitis, are cut off. In all of Horwitz's epididymectomies, even where they were double, there was no atrophy of the testicle, nor loss of sexual power. The production of the internal secretion, as it resides in the body of the gland, is not destroyed.

Excision of tubercle nodules in the gland proper interferes with its function to a much less extent than would be expected from such an operation, depending, of course, upon numbers of tuberculous foci, and the amount of tissue infiltrated. Epididymectomy to the exclusion of orchiectomy has only been popular in the last fifteen years. Scoville in 1852, and Duplay later, recommended complete extirpation of the diseased epididymis and excision of tuberculous nodes in the gland where found, as did Syme and Malgaigne before them. The results, probably because of their lack of knowledge of antiseptic surgery, were not satisfactory. Of late years the success of the French and Italian surgeons again brought the operation into good repute.

The operation is a simple one, and after the first incision is merely a blunt dissection. An incision is made on the outer and posterior surface of the scrotum down to the diseased epididymis, if possible avoiding rupturing into the diseased tissues. The tumor is dissected off from below upward, and the cord tied high up. Because of oozing from the numberless little vessels impossible to tie off, and because some bacteria may get into the wound from the difficulty of satisfactory sterilization of the skin of the scrotum, it is wise to leave in a rubber tissue or silkworm drain for thirty-six to forty-eight hours. After removing the epididymis the nodules in the tunica albuginea can be excised, or one can do an explorative orchidotomy, splitting the testicle longitudinally at its posterior border and exsecting any foci, if they are present. The wound usually heals quickly on taking out the drain.

The following cases have been taken as being more or less typical of the varieties of tuberculosis of the testicle as they present themselves for treatment.

Case 1.—A. L., fifty-two years old, marble cutter. January 3, 1902. Ten years ago began with hydrocele of left side. This was tapped, injected and healed. Now both epididyma are enlarged and indurated. On left side only the globus major seems to be affected; both seminal vesicles indurated and tender; right testicle is twice the normal size and tender. No frequency of micturition except slight during the day. Urine contains tubercle bacilli, as does the sputa. The urine is clear, both glasses contain a few flocculi;

heavy amount of albumin; at times the epididyma are as large as pigeon's eggs, and fluctuate at various points, but subside again. He is still under treatment. Works about his usual number of hours. No operation. General tuberculous treatment.

Case II.—F. A., fifty-three years old; sea captain. September 28, 1895. Three years ago first noticed frequency and pain in urination, lump appeared in the epididymis about same time. Hydrocele of right testicle, which has been tapped repeatedly, finally leaving a sinus connected with the globus minor. This healed in a few months after last tapping. Tubercle bacilli found in discharge from the sinus and repeatedly in the urine. Later the urinary symptoms, principally hematuria, became very pronounced until the urine seemed to be almost clear blood at every urination. He became very anemic, went to a sanitarium for treatment, and died on the operating table September, 1899. In this case the lesion began higher up. No operation upon testicle advised.

Case III.—W. D., lawyer. This patient was first seen in fall of 1887, in consultation with his physician, since dead. He had an acute urethritis and orchito-epididymitis, which followed the passage of a sound. The inflammation suppurated, and was opened and drained. Following this there remained a small sinus, which was troublesome only because of the slight seropurulent discharge. The opening would close up, a cyst would form, and have to be opened occasionally to let out the discharge until after a few years it closed and has remained so for the past eight years. He has had purulent urine for years, which, however, has not given him any further trouble. It contains tubercle bacilli, as did the discharge from the scrotal sinus, and occasionally his sputa. The testicle has almost entirely disappeared. He lives out of doors, and is very active in all his pursuits; he rides, drives and travels under the most favorable conditions; he still has purulent urine; no frequency or pain in micturition; otherwise he is in good health.

Case IV.—W. H. D., forty-nine years old. Tuberculous family history. One of his children died of tuberculosis. Has had syphilis. Called for treatment in March, 1901. Has a lump size of peanut in left globus minor; nodular vas. Noticed the lump for the last year, not tender, fluctuates slightly. Has been taking K.I. for it without result. No bladder symptoms, but urine is purulent. No tubercle bacilli found. Seminal vesicles thickened. Prostate has a few nodules in it. Takes cod-liver oil and hypophosphites. At times the lump becomes painful and tender, but subsides again. His condition remained about same at his last visit in January, 1904. General health good; appetite good; functions normal except loss of sexual vigor. Has premature ejaculation; advised against operation.

Case V.—F. D., elevator boy, March 18, 1899. Treatment, orchiectomy for tuberculosis of testicle, which healed poorly, leaving sinuses. These

finally closed up after several weeks' treatment with irrigation. During this time it was noticed that the other epididymis was enlarged and tender, but he gradually improved, had no noticeable symptoms of tuberculosis in the genito-urinary tract elsewhere, and disappeared from observation. March 8, 1904, almost five years later, called to see me because he had pain in his left side due to a fall. He now has a small sinus with slight discharge connecting with the globus minor of the left epididymis. He had not noticed anything wrong there until his attention was called to it to-day. He is quite anemic, but appetite is good, and he is always at his work. His urine is clear; has no frequency of or pain in micturition. Advised epididymectomy, to which he has consented.

Case VI.—H. B., thirty-nine years old; engineer; heavy drinker; April, 1887, had several attacks of pleurisy with effusion; several attacks of bronchitis and delirium tremens; has slight consolidation of the right apex; has been under treatment for years for various injuries and diseases; dislocation of shoulder; again, later, fracture of clavicle and fractured ribs, etc., usually following an alcoholic debauch. In April, 1897, he returned to my care in his forty-ninth year for abscess and sinuses of the right scrotum. I did an epididymectomy, and he healed rapidly. He regained his health, disappeared for several years but returned to my care at Bellevue Hospital last fall with pulmonary tuberculosis of both apices. His scrotum had remained well, and he had no symptoms of bladder infection, except slightly increased frequency of urination, but with no pain; the other testicle was intact. He died of tuberculosis a few weeks later.

Case VII.—B. F., twenty-seven years old, clerk. December 3, 1897. Gives a history of hard chancre eighteen months ago followed by secondaries. Repeated attacks of urethritis; is a heavy drinker; has tuberculous family history; one sister and his mother died of it. In January, 1898, right-sided epididymitis, which apparently involves the testicle. In February, epididymis still swollen and tender. No vesical symptoms. At times the induration and tenderness of both sides are quite marked. Once during the last six years a fluctuating point in the right epididymis was opened, pus evacuated, and a sinus remained for several months. His present condition is fairly good, but both epididyma are thickened, and enlarged to several times the normal. The prostate is thickened with nodules present in it; seminal vesicles thickened. He has, however, no bladder symptoms and attends to his work, which is indoors. He has taken cod-liver oil and hypophosphites with the general hygiene for consumptives as nearly as he could for years. He has had no symptoms of syphilis and no treatment for that disease for several years. He objects to any operation, and under the circumstances, in view of his general condition, and the fact that the disease has progressed so slowly, I have not urged it. I think, however, if he began to have pain, rise of

temperature, and local suppuration, I would insist upon his deciding upon a double epididymectomy at once or not at all.

Case VIII.—George, nineteen years old. March, 1899. Was operated on for radical cure of hernia several months ago. Has a tuberculous family history; has enlarged cervical glands, one of which was removed and found to be tuberculous. For past five or six weeks his right testicle has begun to swell and he has some pain in it. Examination shows no involvement of the cord, the seminal vesicles or the prostate, but as the swelling was increasing in size, was becoming more and more painful, and the disease had evidently begun in the testicle body, the epididymis being slightly affected, if at all, it was decided in spite of his glandular infiltration to remove the organ. Wound healed up by primary union. I saw him within the past month; he has no genitourinary symptoms, and is in good health aside from those cervical glands which, although he is working as a hospital orderly, he has still unoperated upon.

From a study of nearly 120 cases, and the suggestions derived from various writers on this subject, I would draw the following conclusions for the treatment of tuberculosis of the testicle:

Epididymectomy is the operation of election; it should be done early; it can be done with the best expectation of relief even if there are higher foci; it is not always necessary to remove the higher foci to obtain relief from their symptoms; it is indicated following a preceding castration where the remaining testicle is not involved, or if so, not very extensively.

Orchiectomy is to be performed where the testicle is markedly or alone involved (rare), or where it has broken down, and is a menace to the health of the patient, or where its removal will relieve him of a drain upon his system, and only where epididymectomy is contraindicated.

Exploratory orchidotomy following epididymectomy is indicated where single foci or a few nodules are found or suspected.

Whichever operative procedure is chosen special attention must be paid to the modern hygienic dietetic treatment for general tuberculous disease.

46 West Fifty-fifth Street.

COCAINISM.¹

BY CHARLES J. DOUGLAS, M.D.,

OF BOSTON, MASS.;

MEDICAL DIRECTOR, DR. DOUGLAS' SANATORIUM.

THE cocaine habit is a modern ailment and a most peculiar one, presenting many phases of great interest to the physician. It distinctly differs from morphinism in important respects. Cocaine is more exhilarating than morphine, but as an addiction has less tenacity of grip. Its effects are more immediately startling, but the addiction can be more readily cured.

Cocaine dilates the pupil while morphine contracts it. In many ways cocaine is a physiolog-

ical antagonist to morphine, and yet they are frequently combined. In fact I have treated but few cocaine patients who did not also use morphine. This comes about through the effort of morphine habitués to abandon the use of the drug by substituting cocaine. The result is that the patient has two drug addictions instead of one, and the last state of the man is worse than the first. Another way in which this habit is acquired is by the use of nasal applications containing cocaine. I am satisfied that prescriptions of this kind are responsible for many serious results. I have treated patients who took the drug by insufflation exclusively, and who would be satisfied with no other method of administration.

It is a peculiar fact that drug habitués are almost as insistent upon the precise mode of exhibition as upon the character of the drug. Whether he takes his favorite drug by hypodermic injection, or by rectal suppositories, or via the nasal mucous membrane, or the stomach, he will strenuously insist upon the particular route he originally hit upon. Why, for instance, a man should spend unnecessary time and money on the use of rectal suppositories for systemic effect, when he could get the same results by simply swallowing a pill, is one of those psychological problems that it would be interesting to consider at length. Cocaine habitués usually employ the hypodermic needle, and as the action of the drug is very transitory, they are obliged to devote their days and nights to perpetual puncturing, if they would maintain drug action.

Cocaine produces a particularly injurious effect on the skin, causing abscesses and other sores. Consequently the industrious cocaine user soon has a large area affected. One of my patients had two arms so thoroughly covered with cicatricial tissue, as the result of this practice, that there was scarcely a point on them where a needle could be inserted. One woman, having exhausted all the available area on her arms and legs, utilized the skin across her chest. When she came to the sanatorium for treatment I found a strip four inches wide across her upper chest that presented the aspect of raw meat.

Hallucinations are often present in cocaineism. These frequently relate to the skin. The patient will believe, for instance, that insects are burrowing in the cuticle, and will often make it sore in his efforts to dig out the imaginary parasite. He may also have hallucinations of hearing. Imaginary voices will continually reproach and advise him, even his most trivial acts being criticized by the "voices." One of my patients, a thoroughly educated physician, had both these symptoms to a marked degree. He believed that the parasites were not only burrowing in his skin, but infested his clothing and bed. Consequently he would take every opportunity to change his clothing, or move from one bed to another, in an effort to escape from them. On one occasion he went to an upper room in the house where he was living and, after taking off all his clothing, went down to the ground on a fire es-

¹ Received for publication March 16, 1904.

cape on the outside of the building. After he was restored to health he could not only remember all that he did, but he had a clear recollection of the reasons that impelled him. The "voices" told him that if he would take off his vermin infested clothing and go down to the ground he would there find a clean suit of clothes. By the time he reached the ground, the cool morning air against his unprotected cuticle caused an "arrest of thought," and it dawned upon him that he was standing on the lawn, clad solely in native buff, and unadorned by the arts of man. He accordingly made as rapid strides toward shelter as his unhampered limbs permitted.

Emaciation is almost a universal symptom. A recent patient of mine, who used both cocaine and morphine, came to the sanatorium weighing 102 pounds, and after the withdrawal of the drugs her weight increased to 150 pounds, which was her normal weight.

Cocaine victims are greatly distressed by insomnia. Curiously enough they employ cocaine to promote sleep, although its action is a direct antithesis to that of hypnotics. The reason for this peculiar use of the drug is that these patients are sufficiently comfortable for sleep only when under its influence. It has no hypnotic action, but relieves the distressing drug crave, and thus permits sleep to some extent.

While all drug addictions require sanatorium treatment, cocaineism is one of the most readily cured. Although the results of this addiction are often appalling in the extreme, yet it is remarkable how promptly these patients usually return to a normal state, after the withdrawal of the drug under proper medical care.

THE EXTRAPERITONEAL RELATIONS OF THE APPENDIX VERMIFORMIS TO THE POSTERIOR SURFACE OF THE CECUM, WITH THE REPORT OF A FORM HITHERTO UNDESCRIBED.*†

BY C. E. BRIGGS, A.M., M.D.,
OF CLEVELAND, OHIO;

INSTRUCTOR IN SURGERY, WESTERN RESERVE UNIVERSITY; SURGEON TO THE DISPENSARY, LAKESIDE HOSPITAL.

THE case to which attention is invited in this article presents a very unusual and, so far as we can find, a unique anatomical placement of the vermiform appendix.

A girl of twenty years, a patient of Dr. I. N. Oakes, of North Ridgeville, Ohio, was referred for intercurrent appendicectomy. The patient had suffered from three attacks of what appeared to be appendicular colic. The first attack was in June, 1903, and was manifest by nausea followed by pain in the right iliac fossa; the pain was not severe, and disappeared in two days; there was no fever. About a month later she had a similar attack, but even less severe. On August 20, she suffered a third attack, manifested by nausea, together with pain in the right iliac fossa, the pain

being somewhat more severe than on the former occasions, and persisting for five days. On this occasion, as on the others, there was no fever, no chill and no vomiting except once immediately after taking a dose of whisky. Turpentine stupes were applied in each instance. In none of the attacks was she confined to bed, although in the last attack she felt pretty miserable. These facts in the clinical history are mentioned, as they seemed to indicate the absence of a definite inflammatory condition. Since the last attack, however, there persisted a slight degree of sensitiveness on deep pressure in the region of the appendix. The patient lived in the country a considerable distance from ready communication, which fact, together with the manifest tendency toward increasingly severe recurrence, was the occasion for operative interference.

The operation was performed at Charity Hospital, Cleveland, October 21, 1903, and presented nothing of interest aside from the anatomical condition. The cecum and appendix were readily located, there being no adhesions. The appendix emerged from the cecum at the point noted in the large majority of cases, a little internal and slightly posterior to the projection of the caput, as in the classical third type of the cecum described by Treves.¹ Curving gently upon itself in a downward and backward direction, what appeared to be the tip of the appendix seemed attached to the cecum by an adhesion about 1.5 cm. below the appendiceal base. This at first appeared to be the entire appendix, and measured 2.5 cm. There was a mesoappendix arising from the under or left layer of the mesentery of the extreme distal portion of the ileum. The mesoappendix was about 2 cm. long at the base of the appendix, and was about 4 cm. along its free border, reaching what appeared to be the adherent tip of the appendix. This free border was nowhere attached to the parietal peritoneum, so that the apparently adherent tip of the appendix could be completely surrounded by introducing the finger from the outer side underneath the appendix, beneath the mesoappendix, and out again below the free border of the mesoappendix.

The lack of any adhesions along this free border of the mesoappendix in the presence of what appeared to be an adhesion of the tip of the appendix was the first consideration that led to an understanding of the actual condition present. The end of the cecum was drawn upward, making prominent the line of reflection between the cecal and parietal peritoneum. On careful inspection it was now seen that what appeared to be the adherent tip of the appendix was merely a constriction narrowing the appendix to about one-fourth its proximal diameter. From this constriction the remainder of the appendix was seen in dim outline to lie extraperitoneally along the cecum as far as the line of peritoneal reflection mentioned, from which point it was lost to view in the retrocecal connective tissue. The extraperitoneal portion of the appendix was 1 cm. long. A short incision was made along the line of peri-

* Read at the Clinical and Pathological Section, Cleveland Academy of Medicine, March 4, 1904.

† Received for publication March 15, 1904.

toneal reflection and the retrocecal connective tissue separated along the appendix to its tip. This portion of the organ was 1 cm. long, making the entire appendix 4.5 cm. in length; the free mesenteric portion 2.5 cm., the extraperitoneal portion 1 cm., the retrocecal portion 1 cm.

The organ was readily removed. The mesenteric portion was 6 mm. in diameter, narrowing down at the constriction to a trifle over 2 mm.; beyond this point the diameter of the extraperitoneal and retrocecal portions widened out to 8 mm. The mucous membrane of the portion distal to the constriction was slightly congested, but this, together with the slight general thickening of the wall of the same portion, was the only gross evidence of inflammation. There were no adhesions. There were no foreign bodies. It is possible the distal thickening was due to muscular hypertrophy through efforts to expel mucus from this portion through the constriction. At all events the inflammation was slight and had not extended through the appendiceal wall.

That we have here a primary anatomical condition and not a condition resulting from inflammatory adhesions, there can be no reasonable doubt. An acute inflammatory condition gluing the appendix to the cecum would also have left the appendix adherent to the parietal peritoneum against which it rested posteriorly, which did not occur. An inflammatory process would undoubtedly have bound down the distal portion of the mesoappendix to the parietal surface against which it rested, but the distal border was not adherent and the finger could be freely run under it. If the extraperitoneal appearance of the middle portion of the appendix had been produced by recent adhesions, one would expect to find the remains of peritoneum on the cecal side of the appendix, but this portion of the organ was separated from the cecum only by loose connective tissue. Finally, no explanation along the line of inflammatory adhesions can possibly account for the location of the distal centimeter of the appendix lying in the retrocecal connective tissue.

The most frequent peritoneal relation of the appendix is where the entire organ lies freely in the peritoneal cavity supported by a mesoappendix extending only along the proximal half of the organ, the distal portion being without a mesentery (Quain,² Sappey³); exception is taken to this statement by more recent investigators, notably Monks and Blake,⁴ the opinion prevailing that the mesentery extends further along the appendix in a much larger proportion of cases than was formerly believed. An extraperitoneal relation of all or a part of the appendix is quite rare, except as the result of an inflammatory process.

Of 577 cases mentioned by Stroud,⁵ only nine were partially or wholly extraperitoneal. Bryant⁶ mentions three out of 144 cases examined by H. M. Biggs. Turner, quoted by Bryant,⁶ found in 105 examinations four partially, and two wholly extraperitoneal. An examination of the records of 480 autopsies, performed in the Pathological Department of Lakeside Hospital, affords a series

of 440 cases in which the vermiform appendix was free from gross inflammatory conditions or operative interference. Among these 440 cases only four instances appear in which any portion of the appendix was extraperitoneal, three of which occurred in the last few autopsies. Only one of these cases sustained a relation to the posterior surface of the cecum, as is mentioned later.

There have previously been recorded several types of extraperitoneal relations of the appendix to the posterior surface of the cecum and ascending colon, all of which are so well recognized that they merit no extensive reference list.

1. As the end of the cecum is drawn forward and upward, the appendix may be seen to be extraperitoneal, lying against the posterior surface of the cecum. There is, of course, no free mesentery. It is made possible only in the case of a short or much curved appendix, or where a considerable portion of the posterior cecal surface is covered by peritoneum, and the cecoparietal peritoneal fold is high up under the upper portion of the cecum or lower end of the ascending colon (Deaver⁷).

2. A second form occurs when only the proximal portion of the appendix is in extraperitoneal relation to the posterior surface of the cecum, while the distal portion to a varying degree projects freely into the peritoneal cavity, and is completely invested with the peritoneum. There may or may not be a short mesentery extending from the cecum or ileum to this free distal part of the appendix. In such cases the distal portion may be thought at first to be the entire appendix, but it is noted that the longitudinal bands of the cecum converge on the real, not the apparent base of the appendix, and on careful inspection the remainder of the organ can be seen beneath the posterior peritoneal covering of the cecum. Such an instance is mentioned by Holmes,⁸ and a figure given by Huntington.⁹

3. A third variety is seen where the proximal portion of the appendix is situated extraperitoneally against the posterior surface of the cecum, while the distal portion, instead of being free as in the second variety, passes upward along the posterior aspect of the cecum and ascending colon beyond the line of the cecoparietal peritoneal reflection, and lies in the connective tissue behind the large gut, entirely out of relation to the peritoneum (Huntington¹⁰).

4. Another relation exists when the cecoparietal peritoneal reflection is very low down, close to the tip of the cecum, so that the entire posterior surface of the cecum is extraperitoneal, and lies in direct contact with connective tissue. An appendix in this situation lies entirely in the retrocecal connective tissue, bearing no direct relation to the peritoneum (Huntington¹¹).

5. A fifth variety, a modification of the third or fourth, is observed when the tip of the appendix, for a varying length, projects beyond the cecum on either side from the retrocecal connective tissue in which is buried all the remainder of the appendix, or at least its distal portion exclu-

sive of the tip. The projecting tip is, of course, completely invested by peritoneum. Such an instance has been mentioned by Deaver,¹² and has also been recently observed by the writer.

6. Still another form is seen when the tip of the appendix lies behind the peritoneum against the posterior wall of the cecum, the proximal remainder being invested with peritoneum and supported by a mesentery that may be entirely free, or more or less adherent to the cecum. The extraperitoneal aspect may vary from what appears to be a mere adhesion, to a degree involving the entire distal half of the organ. In the first instance it resembles the case described by Treves,¹³ mentioned later, in which the tip was adherent to the under surface of the mesentery of the ileum instead of the posterior cecal surface. The other extreme has been recently observed in the Pathological Department of Lakeside Hospital by Dr. D. H. Dolly, resident pathologist, the entire distal half of the appendix being extraperitoneal.

By reference to the description of the case under consideration, it will at once be seen that the situation of the appendix bears a certain relation to the third variety mentioned above. This relationship, however, is confined entirely to the distal half of the appendix, the first centimeter of which lies extraperitoneally against the under surface of the cecum, while the extreme centimeter or tip of the organ lies in the retrocecal connective tissue above the cecoparietal peritoneal fold. The proximal half of the appendix lies within the peritoneal cavity, and has an unadherent mesoappendix with a free margin, thus resembling in a degree the sixth variety described. It has been impossible for us to find, after a careful independent search, any distinct reference to a similar condition as an anatomical entity, not the result of an inflammatory process.

The nearest suggestion we can find to the peritoneal relations existing in this case is a very general statement given by Huntington,¹⁴ in speaking of the peritoneal relations of an appendix which lies in the connective tissue behind the cecum, he says, "Even in these cases, however, the dorsal surface of the cecum and the root of the appendix retain their free serous investment." By reference to Fig. 517, described in this connection, it seems apparent that the remark applies to an appendix in which the root lies against the cecum, and "the root of the appendix" has a "free serous investment" as does the "dorsal surface of the cecum"; in other words, that the outer or free side only of the appendix is covered by peritoneum, the same layer covering the dorsal surface of the cecum.

This brings the description under the third variety mentioned above, from which reference was made to Huntington. At all events it must be observed that the text is not altogether clear, that the reference is not specific, and that no allusion is made to a free mesoappendix with an unadherent distal margin. Treves¹³ mentions a case in which the appendiceal tip was adherent to the under or left layer of the mesentery of the

ileum, forming a loop, but no reference is made to an extraperitoneal relation of any portion of the appendix.

It is instructive in this connection to consider certain embryological facts which may shed some light on this very unusual location of the appendix. Excellent figures illustrating these points may be found in the text of Huntington¹⁵ or Kollman.¹⁶ About the sixth week of the embryo the cecum develops as a bud on the posterior surface of the ascending limb of the umbilical loop. The twist toward the right of the posterior limb of this loop around the duodenocolic isthmus places the cecum in the right hypochondrium below the liver. This occurs about the fourth month, and the appendix at this time is already differentiated from the cecum by the overshadowing growth of the body of the latter. During the next three months, with but rare exceptions, the cecum gradually descends to the right iliac fossa, reaching this location about the seventh or eighth month. During this descent of the cecum with the formation of the ascending colon, the identity of the appendix is rapidly developed; a mesoappendix is doubtless present at a very early stage of this development.

In most instances as the cecum descends, the mesentery of this portion of the gut becomes adherent to the dorsal parietal peritoneum of the abdominal cavity, and identical with it, the coalescence progressing from the median line outward toward the ascending colon, and also from above downward. The peritoneal covering of the posterior part of the colon also unites with the dorsal parietal peritoneum, with which it comes in immediate contact, the two adherent layers eventually giving place to the retrocolic connective tissue. The failure of this peritoneal coalescence results in the unusual occurrence of a cecum and ascending colon, completely invested with peritoneum to a varying degree from below upward, with the presence of a longer or shorter mesentery from without inward toward the median line, according to the degree to which the coalescence has been deficient.

The retrocecal relations of the appendix appear to bear a relation to these embryological changes. While the explanations offered for the development of these relations are of necessity largely hypothetical, still it can be said of them that they appear to be logical and sufficient. As the cecum descends, it seems that the tip of the appendix occasionally becomes adherent to the posterior abdominal wall in the line of this descent. The peritoneal relations of the appendix produced in this way would vary according as the appendiceal tip became adherent high up or low down in the cecal course. Occurring high up, the cecal descent would carry the base down, eventually rendering the appendix taut. Still further descent would cause the cecum to overhang the base of the appendix to a varying degree, so that the appendix would appear to spring from the posterior cecal wall; this condition is also accentuated by the subsequent right lateral develop-

ment of the cecum inferiorly. The descent progressing still further would eventually place the base of the appendix so far up on the posterior cecal wall that the coalescence of the cecal and parietal peritoneum with the formation of the retrocecal connective tissue would naturally reach below the base of the appendix, forming the cecoparietal peritoneal fold at this point, and thus leaving the appendix lying completely in the retrocecal connective tissue and entirely out of relation with the peritoneum. This is the condition met with in the fourth variety mentioned above.

Having these changes in mind, it is readily conceivable how some of the other relations of the appendix previously described may occur. The appendix becoming adherent lower down, or the descent of the cecum being less marked, only the distal portion of the appendix may come to lie in the retrocecal connective tissue, while the remaining proximal portion, merely being drawn snugly against the lower part of the cecum, still lies in relation to the peritoneum. The peritoneal surface of this proximal portion now lying in contact with the peritoneum of the posterior cecal wall coalesces with the latter and changes to connective tissue precisely as in the case of the cecum and parietal peritoneum, so that eventually the proximal portion is covered by peritoneum on only one side, while the distal portion lies above the cecoparietal fold in the retrocecal connective tissue. The mesoappendix also becomes adherent to the cecum, and it is sometimes thought to be traced as a thickened peritoneal surface on the cecum to the inner side of the adherent proximal portion of the appendix. In this way is explained the third form previously mentioned.

For an explanation of the case under special consideration we must naturally turn to changes produced in this same line of development, since it bears such a close and suggestive relation to the third form, the development of which we have just considered. It seems most probable that in the case reported the tip of the appendix became adherent rather late in the descent of the cecum, so that only a small portion, 1 cm., became lodged in the retrocecal connective tissue. It would seem that this condition eventuated when the cecum had nearly reached its lowest position and the appendix, instead of being drawn taut against the cecum, still had a considerable proximal portion free in the peritoneal cavity with a mesoappendix extending 2.5 cm. outward from its base. The portion of the appendix between the retrocecal tip and the mesenteric portion, a distance of 1 cm., became adherent in some way to the cecum, the adherent peritoneal surface changing to connective tissue.

That this process of adhesion of the appendix to the cecum should have stopped exactly at the point where the mesoappendix ceased, leaving the distal edge of the mesoappendix entirely free and the proximal 2.5 cm. of the appendix in the usual relation to its mesentery, is strange and very unusual, but entirely conceivable in the order of

development. Had the distal edge of the mesoappendix become adherent, a fossa would have been formed extending under the free portion of the appendix and the remainder of the mesoappendix. This fossa might later have been entirely obliterated by adhesion of the mesoappendix to the cecum, the free portion of the appendix also becoming adherent, and thus produced a condition quite similar to that described under the development of the third form, though brought about in a different way.

Aside from its anatomical interest, this very unusual relation of the appendix possesses two elements of clinical interest. The unavoidable presence of a bend or kink in the appendix at the termination of its mesenteric portion has, of course, the same significance as a similar condition existing under other circumstances, the importance of which has been so admirably insisted upon by Allen.¹⁷ The other clinical feature is the possibility of an intestinal obstruction owing to the insinuation of a nuckle of small gut under the free mesenteric portion of the appendix, beneath the mesoappendix, and out below its unadherent distal margin; such a possibility was noted by Treves¹⁸ in the case showing a free appendiceal loop, to which reference has been made.

Although adding nothing to the present discussion, a contribution by Peronidi¹⁹ gives an extensive bibliography on the anatomy of the cecum and appendix, containing many articles to which reference would otherwise have been made in the paper.

REFERENCES.

- ¹ Treves, F. The Anatomy of the Intestinal Canal and Peritoneum in Man, p. 34 (1885).
- ² Quain's Anatomy, Vol. III, Pt. IV, p. 100 (1898).
- ³ Sappey, P. C. Traité d'Anatomie Descriptive, T. IV, p. 224 (1889).
- ⁴ Monks, G. H., and Blake, J. B. The Normal Appendix; its Length, its Mesentery, and its Position or Direction, as Observed in 656 Autopsies. *Boston Medical and Surgical Journal*, Vol. CXLVII, p. 581, Nov. 27, 1902.
- ⁵ Stroud, B. B. Notes on the Appendix (Abstract). Proceedings of the Tenth Annual Session of the Association of American Anatomists, Dec. 28, 1897, p. 127 (1898).
- ⁶ Bryant, J. D. The Relations of the Gross Anatomy of the Vermiform Appendix to Some Features of Clinical History of Appendicitis. *Annals of Surgery*, Vol. 17, p. 164 (1893).
- ⁷ Deaver, J. B. A Treatise on Appendicitis, p. 34, Pl. V (1900).
- ⁸ Holmes, E. W. The Appendix Vermiformis. *The Pennsylvania Medical Journal*, Vol. 31, p. 205, Jan. 1902.
- ⁹ Huntington, G. S. The Anatomy of the Human Peritoneum and Abdominal Cavity, p. 276, Fig. 374 (1903).
- ¹⁰ Huntington, G. S. Loc. cit. p. 241, Fig. 517.
- ¹¹ Huntington, G. S. Loc. cit. p. 258, Fig. 558.
- ¹² Deaver, J. B. Surgical Anatomy, Vol. III, p. 174, Pl. 342 (1903).
- ¹³ Treves, F. Loc. cit. p. 44.
- ¹⁴ Huntington, G. S. Loc. cit. p. 251.
- ¹⁵ Huntington, G. S. Loc. cit. p. 237.
- ¹⁶ Kollmann, J. Lehrbuch der Entwicklungsgeschichte des Menschen, p. 375 (1898).
- ¹⁷ Allen, D. P. The Origin of Appendicitis. Transactions of the American Surgical Association, Vol. XV, p. 561 (1897).
- ¹⁸ Peronidi, G. Recherches Anatomiques sur le Cæcum et son Appendice. *Revue de Chirurgie*, T. XXII, p. 221, August, 1900.

The Production of Prussic Acid from Albumins.—

That prussic acid might possibly be formed in certain metabolic anomalies of the body would be the natural deduction. From the researches of B. H. A. PLIMMER (*Jour. of Physiol.*, May 3, 1904). By causing the oxidation of albuminous substances with Neumann's acid mixture (equal parts of strong nitric and sulphuric acids), the author succeeded in obtaining hydrocyanic acid, the amount being constant, and varying according to the form of albumin used. This substance may also be obtained by the oxidation of the products of hydrolysis of albumin.

A MODIFIED SCISSORS.

BY CHARLES C. MILLER, M.D.,
AND
J. H. LANGSTAFF, M.D.,
OF CHICAGO.

SCISSORS occupy a most important place among the instruments of the modern surgeon. They have been variously modified by operators to meet the peculiar requirements of surgical technic. In certain respects, we have found the scissors in common use inconvenient, and to overcome some of these inconveniences, we have adopted a modified instrument, as can be observed in the accompanying illustrations. This instrument cannot supersede the ordinary scissors for general purposes, but will prove to be useful for certain steps in the technic of not a few operations.

The instrument with the longer blades will be found invaluable in some cases in following a grooved director, and with this in view the blades should be so made as to permit this most readily. If the blade is not too wide, it can be slipped along the groove until its full length is beneath the tissues to be divided. In this way, tissues can be separated with these scissors much more rapidly, than where the ordinary pointed scissors are used. With the pointed scissors, the point alone can be

Fig. 1.



Fig. 1 illustrates the blades of the instrument separately; showing the outline of the blades.

pushed beneath the tissues to be divided, and the tissues are cut by many short snips, which is time consuming, and has the further disadvantage of making an irregular ragged cut.

Where properly made, these scissors will prove very useful in certain situations, because they permit the operator to lift up portions of tissue, before they are divided. In opening the anterior or posterior uterine cul-de-sac through the vagina, where the ordinary scissors are used, as soon as the vaginal mucosa is divided, the parts are often obscured by oozing blood. In working upward, one must either blindly snip the tissues with the ordinary scissors, or lose considerable time in having the field frequently sponged. In some cases it is very easy to enter either cul-de-sac, but in others it is not, and the procedure, is more or less blind, because of the limited space and oozing blood. While I cannot recommend the practice, many operators will open the peritoneum through the vagina, trusting to their sense of touch, to enable them to keep close to the uterine wall. This sense of touch through a long pair of scissors is uncertain, and the operator may think

that he is closely following the uterine wall by the impression transmitted to his scissors, when in reality he is not. With these scissors tissues can be picked up by the small blade, and when firmly hooked beneath them, can be drawn outward, and thus are exposed to sight before they are divided. In this way no attention need be given to clearing the field of blood.

The instrument will also prove of value in doing the complete hysterectomy from above, when working our way into the vagina. The small short blade can be used to hook up a considerable

Fig. 2.



Fig. 2 illustrates the short blade which is particularly useful for removing sutures and for use in positions where space is limited.

mass of tissue, which can be quickly and certainly divided, the position of the blades making slipping less liable than in the ordinary scissors. In this operation, where time can be saved with safety by a special instrument, it is well worth while to have one at hand.

Firm strong adhesions of the viscera, can often be more safely clipped with these scissors than they can be by those ordinarily in use. Very often one will use this instrument to divide adhesions rather than to separate them with the fingers. Where an intestinal loop is firmly adherent to a solid tumor, or to the uterus, the small blade of the scissors can be pressed under the adhesion close against the uterus or tumor, and it can be more safely divided than by separation with the fingers.

In some operations, we are anxious to avoid the division of certain nerves. In cutting with the ordinary scissors or the scalpel, we must watch

Fig. 3.



Fig. 3 will clearly illustrate the position of the blades when the instrument is closed.

very closely, lose a good deal of time sponging away slight amounts of blood, which obscure the field, and in spite of care in a certain percentage of cases, we may accidentally injure the nerve. In such an operation, the tissues can be picked up rapidly by these scissors and put upon the stretch before they are divided. In this way our cellular tissue is rendered bloodless, when stretched tightly over the blade of the instrument, and the nerve

for which we are searching at once becomes visible.

These scissors were originally devised by Dr. Langstaff for the removal of sutures. In some localities considerable difficulty is experienced in picking up a silver wire or silkworm-gut suture with the ordinary scissors. In repairing the lacerated cervix, the wire or the silkworm-gut suture is superior to all others, but in some patients, particularly after repair of the perineum, it is difficult to remove them after the operation. These scissors facilitate the removal of such sutures. The small blade can be passed well under the stitch before an effort is made to divide it.

The success of perineorrhaphy often depends upon proper suturing and suture material. Cat-gut will always prove more or less unreliable when placed under tension. Vaginal sutures of gut to unite the perineal body are, in my mind at least, much inferior to the silkworm-gut, and I prefer the latter to the former. Where used, they should not be cut short. The long extremities of the sutures should be gathered in a bundle, and left lying in the vagina. When they have served

Fig. 4.

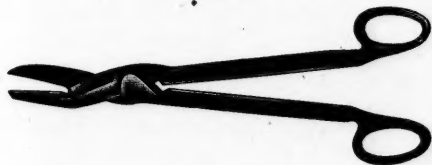


Fig. 4 is the instrument with the blade double the length of those illustrated in the former three cuts. This instrument is as a rule most useful for operative work. It may appear of doubtful advantage to burden one's instrument table with these special scissors, but their trial will, we believe, demonstrate their advantages.

their purpose, the scissors illustrated in this article will prove useful in reaching and removing them.

These scissors are of particular value in removing silver-wire sutures used in wiring the jaw, when this bone has been fractured. We always try to secure as small a scar as possible, after operations on the face. In jaw fractures, it is best to remove the silver wire, when the bone has united. The wire can be untwisted, but that will leave a spiral end, which can only be pulled through the bone with great difficulty. Without untwisting, the small blade of the scissors can be passed well under the loop, and the tissues pressed out of the way so that the wire can be cut with ease. One cannot appreciate the value of these scissors for this purpose until he has tried to cut the wire with ordinary scissors, or has attempted to draw a heavy wire through the bone, when it is more or less spirally bent, as the result of untwisting.

The instrument is more or less useful in cutting stitches in other parts, as the small blade can be slipped under the loop, and the instrument turned so that it is impossible to nip the patient accidentally.

MEDICAL PROGRESS.

MEDICINE.

Lipase in the Urine.—The diagnosis of pancreatic disease, especially of the acute pancreatic form, is attended clinically with such difficulties that any accessory symptoms are welcome additions. It has long been known that in certain cases of pancreatic disease lipase, a fat-splitting ferment, appears in the urine, but the fact has hitherto not found any practical application. The test for its presence suggested by Ophüls (*Jour. Med. Research*, May, 1904) is simple enough to warrant its acceptance as a valuable practical adjuvant in diagnosis. Five c.c. of urine in two flasks are accurately neutralized with sodium hydrate solution of one-tenth normal strength; one of them is then boiled in order to destroy the lipase, and is used as a control. To each tube is now added one-fourth c.c. of ethyl butyrate, and one-tenth c.c. of toluene to prevent the development of bacteria. The flasks are incubated at 39° C. for twenty hours. The contents of each flask are now extracted with ether. If there has been considerable activity on the part of the lipase, there is a marked odor of butyric acid in the unboiled specimen. Quantitatively the acidity may be measured by titration. The lipase is probably identical with that which causes fat necrosis in the abdominal cavity.

Chronic Diphtheria.—Although the existence of this condition has been recognized for many years, there are but very few references to it in the literature. L. NEUFELD (*Deutsche med. Woch.*, May 12, 1904) believes that the affection is not so rare as ordinarily supposed, but that the obscure situation of these pharyngeal ulcers renders them hard to find, or if found they are often considered as tuberculous or specific lesions. He reports a case where an ulceration of the pharynx followed an apparently simple angina. It was finally proved to be diphtheritic in character and took five months to heal. A specific diphtheritic process with the formation of a false membrane was not observed during the angina or later. Fever was only noticed during the acute stage of the angina, which lasted but two days. Behring has called attention to a group of clinical cases which he terms diphtheroids; these differ from true diphtheria in the clinical picture which they represent, but are nevertheless due to infection with the diphtheria bacillus. Neufeld thinks that his case may also be included in this group and that there are many instances where an aborted diphtheritic infection is the basis of one of these chronic processes. He also found that in many cases of atrophic rhinitis, plate cultures showed the presence, among the *ozena* bacillus, of several colonies of bacilli belonging to the diphtheria group. His observations are not sufficiently assuring, however, to warrant him in drawing any conclusions.

Reaction After the Use of the X-Rays.—It is claimed by H. E. SCHMIDT (*Deutsche med. Woch.*, May 12, 1904) that there are premonitory signs which he terms "Frühreaktionen," which come on within a few hours after an effective application of the X-rays. These are not uncommon and are erythematous in character. They must be distinguished from the dermatitis usually associated with X-rays and which is not apparent until eight to fourteen days after their application. This erythema is independent of the age of the tubes and has only been observed in isolated cases, where a particular predisposition seems to be present and where recurrence is almost

invariable. The phenomenon apparently depends on some peculiar sensibility of the circulatory system to the rays, similar to that which has been demonstrated for other influences of a psychic, toxic or thermic nature.

The Adaptation of the Pupil to the Habitual Use of Atropine.—A study in the very important field of biological adaptation has been made by W. STEFANI (*Arch. Ital. de Biologie*, March 24, 1904). In studying the reaction of the pupil to the prolonged use of atropine the author noticed at first an acceleration in the appearance of the reflex and a shortening of its duration. As a second stage there is noticed a retardation in the appearance, with a diminution of intensity and duration. The first stage recalls the mode of reaction in young individuals. The adaptation is apparently connected with a more rapid circulation of the drug in the tissue elements. The quality of reaction is not changed by adaptation, which only changes the intensity of the reaction. At the end of a certain time the reaction diminishes and continues to diminish progressively until a certain point, after which it is constant. The results, according to the author, might have a general application, if they be confirmed by analogous researches on other stimuli. The various theories of immunity (phagocytic, antitoxic and humoral) must all ultimately be reduced to the adaptive capacity of the individual cell, just as the results of the author bespeak an adaptation of the cellular elements of the pupil. Other facts in biology are brought to mind. Thus, the more rapid appearance of the reaction and the shortening of the duration, correspond to an increased excitability and resistance toward the action of the drug. The repeated application of the stimulus exaggerates excitability and resistance, determines predisposition and confers immunity, refines sensibility and produces indifference. One might apply here the figure suggested by Fisher, and compare the sensitive elements to a lock and atropine to the key, adaptation being but the facilitation of the play of these elements without altering the type or the correspondence.

Medical Aspects of Decapsulation of the Kidneys for Chronic Bright's.—Only after a careful analysis and classification of the cases reported as instances of chronic Bright's disease subjected to decapsulation can we form a proper estimate of the value of this operation, in dealing with these unfortunate patients. Surgeons seem to have persuaded themselves that the disease is an unmanageable one by medical treatment, and that decapsulation is the one avenue of escape. A. R. ELLIOTT (*N. Y. Med. Jour.*, June 4, 1904) has endeavored to classify the cases which were recently reported by Guiteras as the most complete list of operated cases in this country. It was possible by the clinical data given to fairly definitely classify 112 out of the 130 cases enumerated. Of these 29 were instances of floating kidney with albuminuria; 43 were cases of chronic interstitial nephritis, and 33 chronic parenchymatous nephritis. Of these 76 cases 36 died; 12 were unimproved; 2 rendered worse and 26 were improved. Thus 65.80 per cent. of cases failed to be improved by the operation, and of those said to be improved many of them had not passed the probationary period of six months. Certainly these statistics could not be considered as comparing favorably with the results of medical treatment upon similar cases. It is well to remember that chronic Bright's in its development constitutes a diseased condition of the entire system. It is of very gradual development and in the great majority of cases has existed for years before it is discovered. Anuria, general dropsy and even uremia in kidney disease are in many instances the result of cardiac failure, and the treatment often centers

around that organ, which certainly could not be helped by this operation. Experiments demonstrate that within a period of three months and a half a new and, in most cases, a tougher fibrous capsule has taken the place of the original one. At the present time, therefore, one does not seem justified in advising an operation, the results of which are far more uncertain than those of medical treatment.

Treatment of Epidemic Cerebrospinal Meningitis by Intraspinal Antiseptic Injections.—Since the death rate from this disease during the present epidemic has ranged from 80 to 90 per cent. various methods have been resorted to in the hopes of better results. C. E. NAMMACK (*Med. Rec.*, June 4, 1904) reports five cases in which a ten per cent. lysol solution was injected into the spinal cord by lumbar puncture. In one case, after three injections of 15 cm. each at intervals varying from one to three days, the patient entirely recovered. The other four cases died, some of them showing temporary improvement after an injection.

Pancreas-hemoglobin Muscle Extracts in Diabetes.—Although the pancreas is known to be intimately connected in many cases, at least, with the causation of glycosuria, yet it is not at all well understood just what relation the functions of the gland has to the metabolism of sugar. It is supposed by many that an internal secretion from the pancreas converts the glucose into an assimilable carbohydrate and that when this function of the gland is lost glucose is rapidly excreted by the kidneys. A. C. CROFTAN (*N. Y. Med. Jour.*, May 7, 1904) by experimentation has found that by giving the pancreas gland alone to animals or human beings suffering from glycosuria, no appreciable diminution in the amount of sugar excretion is found. If, however, pancreas is placed in a sugar solution that contains hemoglobin there is a decided action in which glucose undergoes conversion. He has, furthermore, proven that by using an extract of pancreas-hemoglobin-muscle he is able to control the sugar excretion of diabetics to a considerable extent, and thus allow the patient a moderate carbohydrate diet from which he may derive the necessary nutritive qualities instead of passing the glucose off through the urine unchanged.

Increase of Pneumonia.—One of the most distressing admissions which the medical fraternity is obliged to make is its seeming inability to successfully cope with that king of diseases, pneumonia. J. H. PLEASANTS (*Maryland Med. Jour.*, May, 1904) shows that in 1890 the deaths from pneumonia were considerably less than those from consumption, but that there has since been a gradual increase in the number of cases and the mortality until in 1900, when pneumonia claimed almost as many victims as consumption. Even though we have found no specific by which we may treat this much-dreaded disease, yet it is not reasonable to suppose that our methods are not as efficient as they were twenty or thirty years ago. Some of the factors which he mentions as being important in determining the death rate, and especially in making the mortality seem high at the present time are: Increased density of population, climatic changes, large influx of immigration, the more accurate diagnosis, a possible increased virulence of the pneumococcus and the introduction of the influenza bacillus during the past fifteen years. Many of these factors undoubtedly diminish the resistance of the lung tissue.

Obesity.—The mode of living which is pursued by many at the present time has naturally resulted in making obesity a condition which the physician is frequently called upon to remedy. L. WILLIAMS (*Practitioner*, May, 1904) gives some valuable suggestions in regard to

the management of these cases. Obesity in its commoner forms is, of course, due to a want of balance between intake and output, either too much food is ingested or too little oxidized, but it is often very difficult to discover the nature of the want of balance. Those who have been athletic in youth are very liable to continue the habit of eating large meals, long after the necessity for that amount has ceased. Another set of persons who habitually eat too much are those deluded creatures (generally women) who imagine that they need "supporting" and proceed to eat highly nutritious foods at frequent intervals of the day. An entire separation from their ordinary environment is generally needed. Drinking large quantities of water and especially alcoholic beverages at meal time is very conducive to obesity, for it not only seems to increase the appetite, but also enables the food to pass more rapidly out of the stomach and makes it possible for the patient to eat more. Fluids should be taken a quarter or half hour before eating or after all the solids have been eaten. The importance of thorough mastication is not usually fully recognized. It is said that every mouthful should be masticated until it is both fluid and tasteless and if this is done a patient will oftentimes be satisfied with one-half the ordinary amount. A severe restriction of the proximate principles which are most readily converted into adipose tissues, such as starches, fats, sugars and alcohol, is, of course, important, but if carried too far the kidneys may be injured. To effect oxidation muscular exercise is of greatest importance, but it is frequently impossible to secure the proper amount and kind of exercise without sending the patient to some resort. The reason why as much fat is deposited in the abdomen, he believes, to be due to the fact that the abdominal muscles are not sufficiently exercised and developed. Activity of the brain must also be maintained and all tendencies to lethargy fought. He lays especial stress upon the fact that most people are too much afraid of fresh air and dress altogether too warmly, thus seriously diminishing the function of that most important organ, the skin. He discourages the prevalent use of thyroid extract as being deleterious to the heart and other organs, and urges that it be exhibited carefully and only when associated with the other details of management and hygiene.

Tetanus Treated by Intravenous Injection of Antitoxin.—It has been known for some time that the tetanus toxin exerts its influence only upon the cells of the central nervous system, particularly those of the spinal cord. Furthermore, this toxin apparently can reach the central cells only by traveling centripetally along the axis cylinder processes of the motor nerves. J. ROGERS, JR. (*Med. Rec.*, May 21, 1904) suggests that since the poison pursues this course, a much more immediate and decided effect can be obtained from the antitoxin if it is injected directly into the nerve trunks along which the toxin is traveling. Of course, if it is injected early, the subcutaneous or intravenous methods are successful, because it requires several days before the virus is able to cause symptoms arising from its action upon the cells. If symptoms have already begun, however, and these are the cases usually met with, ordinary methods are seldom efficacious. Upon a seemingly severe case in the stage of trismus and opisthotonus he exposed the lower end of the brachial plexus and injected from five to ten minims of the antitoxin in each of the median, ulnar, musculo-spiral, musculo-cutaneous and circumflex nerves. He also did a lumbar puncture, partially withdrawing the needle several times to endeavor to scratch some of the nerves of the cauda equina and thus cause a more rapid absorption. He then in-

jected 130 minims of the antitoxin. The patient was much improved within twelve hours and more antitoxin was injected into the nerves and the cord. He made a rapid and complete recovery without showing any reaction except a rise of temperature to 102° F. on the day following the first injection.

SURGERY.

Control of Colon Hemorrhage by Left-sided Colotomy.—The control of intestinal hemorrhage is a subject which is engrossing much attention at the present time. All effort in this direction by the use of drugs has been given up by every intelligent observer. There is nothing left except mechanical treatment by surgery. HENRY B. ROBINSON (*Lancet*, April 23, 1904) recites the history of a case in a man, sixty-six years of age, who suffered almost continuous hemorrhage from an ulcerative colitis. By good fortune, operation revealed the hemorrhage taking origin in the lower portion of the sigmoid, which part of the bowel happily escaped through the laparotomy wound. The mesentery was perforated opposite the ulcer, a glass rod slipped beneath the gut and the wound packed. The patient died in thirty-six hours. Post mortem, a well-marked ulcerated colitis was found which began at the cecum and reached to the lower end of the sigmoid. The rectum was practically healthy. The hemorrhage was entirely controlled by operation, but the work was undertaken too late to prove life saving.

Renal Reflex Pain.—Probably no organs in the body produce more acute reflex pain than the kidneys and the ureter. As a rule, although it is widely distributed over the abdomen, there is more or less segregation of the symptoms on the affected side. DAVID NEWMAN (*Lancet*, April 23, 1904) states that although it varies according to circumstances, it is sufficiently constant to be a very valuable guide to the surgeon in determining the nature of the involvement. The renorenal reflex pain has been described by Guyon and Thornton. Morris states that it is important to know that a stone in one kidney will sometimes excite sympathetic pain in the other, but this pain is of an aching character, differing from the usual symptom in not being spasmodic or colicky. He states that in his experience there is not a single case in which pain had been of the renorenal reflex character. The author cites three cases, which are described in full, from which he concludes that those observers who believe in the existence of this symptom are correct. He believes that an entire absence of pain may exist on the involved side. Six cases in all are discussed in this interesting article and the conclusion is, that absence of pain on the side diseased is not unusual, and is of very great clinical importance.

Intracranial Resection of the Second Division of the Fifth.—The usual mode of reaching this nerve near its origin is by following it back from its exit on the face through the floor of the orbit as nearly into the sphenomaxillary fossa as the surgeon's skill may carry him. J. HUTCHINSON, JR. (*Lancet*, April 16, 1904) recommends that this disfiguring procedure should be supplanted by an intracranial operation: (1) because it is possible by this path to get nearer to the brain and make more certain the prospect of permanent cure; (2) because a depressed scar on the cheek is much more disfiguring than one hidden by the hair of the scalp. A year ago the author operated upon a ship's officer, nearly sixty years of age, who was suffering from the most intense form of facial neuralgia. As in the operation for the removal of the Gasserian ganglion, the dura and the temporosphenoidal lobe were pushed upward and inward. From this point on, however, the foramen ro-

tundum is the landmark sought rather than the foramen ovale, as in the Gasserian ganglion operation. The whole of the nerve was removed and a small drain inserted. The relief during the last twelve months has been permanent. Anesthesia is naturally well marked over the cheek, the soft palate and the lower eyelids. The patient can eat and talk with comfort, whereas before the operation both acts brought on spasmodic pain. In those cases of facial neuralgia in which the third division of the fifth is involved, this operation must ultimately become that of choice if for no other reason than because there is no interference with the muscles of mastication. The depth of the nerve trunk is 3 cm. from the temporal fossa, and the oozing in the narrow space obtainable by a pushing back of the brain is just as troublesome as in the case of Gasserian ganglion removal. In Treve's five cases pain is recurred within twelve months in two. The third patient died within six months, and in the remaining cases recurrence was observed within two and three years, respectively. Out of 22 cases of Carnochan's operation in but three was the relief stated to be permanent. This is a discouragingly low percentage of cure and bears no relation whatsoever to the results obtained in properly executed Gasserian ganglion operations.

Congenital Absence of the Patella.—The comparatively few cases of this rare condition which have been reported may be divided into two groups: (1) Includes those where there is a congenital absence of the patella, combined with other deformities of the knee-joint. This also includes those instances where during the first few years of life the patella is absent or only partially developed, but may grow more or less during later years. (2) Cases where there is a congenital and hereditary lack of both patellae, but where the joint is otherwise perfectly normal. In the latter group is included the case reported by O. HEINE (*Berl. klin. Woch.*, May 9, 1904). The patient was a man of thirty-four years, who stated that his father and sister were similarly afflicted. X-ray examination showed the complete absence of both patellae. The condition did not appear to interfere in any way with his activities. The outer condyles and the tuberosities were markedly developed. When the man forcibly extended or flexed his knee, the quadriceps tendon slipped outward and apparently was supported by the enlarged condyle, the latter acting as a fulcrum, and in this way aiding the action of the muscle. The hypertrophied tuberosity of the tibia also seemed to take the place of the patella, by displacing the tendon further forward. From a study of the case thus far reported, it appears that the deformity is hereditary, that the knee is otherwise normal, that its function is undisturbed, and that the tuberosity of the tibia acts as an efficient substitute to the patella in the functioning of the joint.

Suprapubic Prostatectomy Under Nitrous Oxide.—The chief contraindication to the performance of prostatectomy, in many cases, has been the danger resulting from the administration of ether or chloroform. J. WIENER (*Jour. Am. Med. Ass'n*, May 14, 1904) suggests the use of nitrous oxide and reports a number of cases which he believes were the first to be done in this way. All his cases were in poor general condition and it was therefore necessary to shorten the time of operation and to avoid shock and hemorrhage. Seven patients were operated upon with good results: old age, diabetes and cystitis not proving contraindications. The operation usually took between ten and twelve minutes, some time being saved by cutting down on a distended bladder. The author believes that a previous cystoscopic examination is unnecessary and apt to do harm, often

setting up an acute cystitis. He follows Lilienthal's method and employs continuous bladder drainage immediately after the operation. The gauze packing is removed at the end of twenty-four hours and a tube substituted, which remains in place usually two to three weeks. The bladder is irrigated twice daily. A sound should be passed three weeks after the operation once a week for three to four weeks longer. The only case where a perfect result was not secured was one in which this sounding was omitted and a prostatic stricture resulted.

The Prevention of Tetanus.—That it is possible to prevent tetanus if a punctured wound which has been inoculated with tetanus bacilli be treated sufficiently early by methods which are based on the knowledge of the bacteriology of the disease is the opinion advanced by D. E. EISENDRATH (*Jour. Am. Med. Ass'n*, May 14, 1904). The wound is practically, in most cases, a closed one, filled with blood clots, necrotic debris and foreign bodies, and the essential thing in the treatment is to open and cleanse every part of it, preferably under general anesthesia. Prophylactic injections of tetanus antitoxin should be given to aid the organism in combating whatever toxins may have been absorbed prior to the time of operation. The blank cartridge itself does not contain the tetanus bacilli, but undoubtedly carries them from the skin while penetrating the latter. He believes that the only way to reduce the mortality is to employ the most radical procedures, with which he was successful in eight cases treated in this manner.

Antethoracic Esophagojejunostomy.—This operation is intended especially for multiple, benign stenoses of the intrathoracic segments of the esophagus, or possibly for carcinoma of the gullet in the region of the bronchus. As a substitute for the esophagus it is planned to carry a portion of the intestine out from the abdominal cavity over the bony thorax and affix it to the chest. It is then proposed to expose the esophagus in the neck, to cut it through as far down as possible and also attach it to the anterior aspect of the chest wall. The intervening space between the gut and the esophagus may then be converted into a canal by means of a plastic flap. This unique procedure has been proposed by L. WULLSTEIN (*Deut. med. Woch.*, May 12, 1904) and experiments on the dead body showed that the most suitable section of gut for the purpose was that part of the jejunum lying about 30 cm. below the plica duodenojejunalis. The jejunum may be carried up to the fourth costal cartilage without producing any great amount of tension. The flap for the plastic procedure is taken from in front of the sternum and over the right costal cartilages. It is turned so as to make a tube with the skin side within and may then be united with the gut below and the esophagus above. Animal experiments were conducted with considerable difficulty, the hair lining the tube and the trouble in nourishing the dogs interfering with the success of the procedure. Thus far no attempts have been made to apply the operation in the human subject. From his study of the method, as carried out on the cadaver, it is suggested that the operation be done in three stages, which he describes in detail. In the first, the jejunum is fixed to the anterior thoracic wall. In the second, the skin tube is formed from the plastic flap, and in the third the esophagus is isolated and united to the plastic tube. The first and second stages may be done together, but it is suggested that an interval of ten days be allowed to elapse before the third stage is completed. The same principle is also suggested for another operation which he calls retropelvic colorectostomy. In this the rectum is brought into direct communication with the descend-

ing colon outside of the pelvis in the region of the left iliac bone.

A Case of Sinus Pericranii.—Stromeyer first described this condition as a tumor under the pericranium which contains venous blood, and is in communication with the cerebral sinuses, either directly or through the medium of the venous blood, channels in the bony cranium. The lesion is a rare one and the case reported by M. LITTAUER (*Berl. klin. Woch.*, May 30, 1904) is only the tenth on record. The patient, a man of twenty-four years, received a blow on the head, which was not followed, apparently, by any serious consequences. Some two weeks later, however, after being for some time in a stooping position, the man noticed a soft swelling in the right temporal region which disappeared gradually after the erect position had been resumed. Whenever the head was bent down for any considerable period, the swelling reappeared. There were no attendant symptoms. The contents of the tumor were not cerebrospinal fluid as the presence of a hernia cerebri or a meningocele could be excluded. Blood which remained in communication with the general circulation was the only other material possible. The author believes that the injury caused a rupture of one of the veins of the diploë or of one of the emissary veins, and that the proper closure of the vessels was prevented by the dense adhesions of these structures to the surrounding tissues.

Treatment of a Third Ureter.—An interesting case is reported by HOHMEIER (*Zeitschr. f. Geb. u. Gyn.*, Vol. 51, No. 3), where there was present in a fifteen-year-old girl a third ureter, opening directly into the vagina. Earlier in life the complete hymen caused a retention of urine in the vagina from which resulted the formation of a large phosphatic calculus. This was removed, but the incontinence still continued. Operation was then decided on and the ureter implanted into the bladder through a deep perineal incision. The patient made an uneventful recovery. The absence of any scars in the perineum from obstetrical or operative sources rendered the vaginal operation very easy to perform.

Rubber Tissue and Boracic Acid in Chronic Ulcers.—Numerous methods have been suggested by which slowly healing chronic ulcerations, especially those varicose ulcers of the leg, might be more rapidly covered by healthy epithelium. W. S. SCALEY (*Med. Rec.*, June 4, 1904) reports a method which has been used with good results at the St. Luke's Hospital Dispensary. After thoroughly cleaning the surface of the ulcer it is covered by a generous quantity of boracic acid powder and then a piece of rubber tissue, large enough to extend an inch or more beyond the edges of the ulcer, is applied. This is held in place by adhesive plaster, a layer of gauze is added and the whole is firmly bound by a bandage. This dressing is allowed to remain in place from five to seven days. The advantages of this dressing are that the boracic acid acts as an antiseptic and astringent, diminishes the discharge and prevents exuberant granulations. The rubber tissue, being much smoother than gauze, prevents the roughening of the surface of the wound which is oftentimes seen to be furrowed by the latter. The rubber tissue prevents the absorption of the boracic acid by the dressing and it is also valuable for the same reason when ointments are used. The dressing may and should be left on for several days, because the tender epithelial cells are thus given a better chance to withstand manipulation. Great care should always be taken to avoid injuring the new cells.

Renal Redecapsulations.—Another step forward has been taken in the seemingly mad endeavor of surgeons to rescue unfortunate nephritics from the help-

less hands of the physician. Much clinical material has now been brought forward to demonstrate the benefits to be derived from renal decapsulation and yet a careful perusal of this evidence must leave doubts in the minds of the less enthusiastic in regard to the permanent improvements. It is now admitted that decapsulation results in only temporarily removing the covering, for in a few weeks the organ is again surrounded by a capsule similar to the former one in structure and consistency. G. M. EDEBOHLS (*Med. Rec.*, May 21, 1904) reports the case of a man well till 1897 when symptoms of weakness were noticed, brick-dust sediment was found in his urine and he had one severe attack of headache and vomiting. Later urine examinations showed albumin and casts on various occasions, and in 1898 he had marked edema of feet for three months. He was subject to migraine, but apart from this and the symptoms mentioned above there were few or no symptoms of poor health during the subsequent four or five years. His urine then showed that there was some albumin and casts, and cultures from it showed the presence of *Staphylococcus albus* and the *Bacterium coli commune*. Renal decapsulation was advised and done in both kidneys. The capsule was found "slightly and unevenly thickened, but otherwise normal." He remained well for about six months after operation, when he had a severe attack of an acute infective, involving the urethra, bladder epididymis and prostate. This finally cleared up, but his anemia persisted and later uremic symptoms appeared. Renal redencapsulation was advised, but was refused until he became moribund and complete suppression of urine determined. The second operation in the hope that the latter condition might be relieved. "The new capsule was thinner and perhaps more transparent than the original capsule. There was not the slightest evidence of compression. The perirenal fat was found well vascularized, though the entire operation, including the separation of the capsule from the kidney was practically bloodless." The kidneys presented the same appearances as at the former operation. The patient died five hours later in uremic coma, but had voided considerable quantities of urine after the operation. The previous operation seems neither to have increased the vascularity of the kidney, nor to have relieved any compression.

PHYSIOLOGY.

Fermentation Experiments with the Muscle of a Mummy.—It has been shown that a positive precipitin reaction could be obtained with muscle substance taken from mummies dating back 250 to 2,000 years before Christ. E. SEHRT (*Berl. klin. Woch.*, May 9, 1904) thought it probable that in a similar manner a glycolytic action might be demonstrated. He obtained some pieces of the neck muscles from a mummy, powdered it and freed it from bacteria by acetone. The pancreatic element obtained was that of an ox, as it was impossible to secure that organ in a mummy. The experiments showed that this muscle has a marked glycolytic action, when combined with the pancreas, which is as effective as that seen with fresh muscle. The fact that a muscle, over 2,000 years old, has the power to produce reactions in a test tube, which only a comparatively short time ago were considered "vital," is not only of general scientific interest, but also serves to aid in changing present conceptions as to the nature of ferments.

Heat Regulation in Fever.—The respiratory-calorimetric investigations made on feverish children by E. BABÁK (*Plüger's Archiv*, April 9, 1904) show that the regulatory mechanism governing temperature is subject to important disturbances in fever. The disturbance

affects the physical side of temperature regulation, namely, that which has to do with the loss of heat, more than it affects the chemical side, or that which has to do with the production of heat. Indeed, the latter may be normal. The former is detected by an abnormally diminished loss of heat. With a normal or even diminished production of heat, the temperature rises. On the other hand, there are cases in which the loss of heat is increased to a large extent and yet is not sufficient to carry off the excess of heat resulting from an accelerated production of heat. This last is proved by combined calorimetric and respiratory exchange methods. The important disturbance in the temperature-regulating mechanism in children suffering from fever is also frequently manifested in the rapid variations in the heat curve as well as the equally frequent and rapid alternations of the febrile and afebrile conditions.

Experiments on Surviving Mammalian Small Intestine.—After the removal of the mucous membrane, the spontaneous movements of the intestinal musculature continue, and are, therefore, not to be attributed to sensory stimulation of the mucous membrane, but are to be considered automatic, according to R. MAGNUS (*Phüger's Archiv*, April 9, 1904). Likewise the removal of the submucosa and the therein contained Meissner's plexus does not affect these movements. The local peristaltic reflexes are possible also in the absence of Meissner's plexus. A simple tear at the inner border of the circular muscle does not interfere with the spontaneous movements of the circular muscle, but a similar tear at the outer edge of the latter, by virtue of which the muscle is isolated from Auerbach's plexus, causes a permanent disappearance of spontaneous movements, while the longitudinal muscle, which still remains in connection with Auerbach's plexus, preserves the normal type and rhythm of its movements. The above results show that the automatic movements of the intestinal muscle are not of myogenic origin, but depend upon centers contained in Auerbach's plexus. Possibly these results will be of value in the study of the rhythmic movements of the heart.

Blood-Platelets and Coagulation.—Many new and interesting facts of possible practical value in clinical medicine are revealed by the researches of K. BÜRGER (*Phüger's Archiv*, March 21, 1904). A new method of obtaining the blood-platelets was devised as follows: A block of paraffin, whose upper surface has been scrupulously cleaned and smoothed, is placed in a moist chamber. A drop of blood is obtained from the tip of the finger from a wound made by the blade of a Franke's snapper, which has previously been cleaned in ether-alcohol aa, and then sterilized in the flame. The drop of blood is allowed to fall upon the smooth surface of the paraffin-plate in the moist chamber and allowed to remain in the latter for twenty to thirty minutes. The blood does not coagulate, provided that drying or contact with foreign bodies does not take place. The formed elements of the blood begin to separate, the heavy red and white corpuscles falling to the bottom of the drop, and the blood-platelets, being light, rise to the top. At the end of twenty to thirty minutes the top of the drop is touched with the surface of a cover-glass, which is then placed on a slide. Under the microscope are now found many blood-platelets and no red or colorless corpuscles. The author found that the blood-platelets are independent elements, and are not formed from red or colorless corpuscles. The author devised a new method for the determination of the coagulation-time of the blood, by which only a drop of blood is used, and in which the error never amounts to more than half a minute. The temperature influences coagulation-

time. Thus at 13.7° C. the time is 18½ minutes; at 24.2° C. it is 6½ minutes; at 39.8° C. it is 2¾ minutes. A regular curve indicating the effect of temperature may be constructed. The effect of the temperature is so great and precise that, knowing the coagulation-time the temperature may be calculated. Independent of the variations in coagulation-time, corresponding to the varying temperatures of the day, there is a physiological variation in the former as follows: the minimum is reached during the early afternoon hours. For different individuals coagulation-time is fairly constant. Coagulation is closely connected with the destruction of blood-platelets. The amount of fibrin formed depends upon the number of destroyed blood-platelets. Moreover, all these factors that affect coagulation, such as temperature, wall of blood-vessel and chemical substances, act in a corresponding way upon the blood-platelets. If the latter are destroyed, then coagulation occurs; otherwise not. Thus, an extract obtained from the leech is capable of inhibiting coagulation. This substance, which is an albumin or an albuminous derivative, likewise inhibits the destruction of the blood-platelets. Certain quantitative and gravimetric observations indicate that the blood-fibrin is derived from the blood-platelets.

Physiology of the Thyroid.—In looking over the literature upon the thyroid gland, K. KISHI (*Virchow's Archiv*, Vol. 176, No. 2) discovered that, despite an enormous amount of work upon the subject, many very important questions are still unsettled. Thus, there is considerable difference of opinion upon the effects of simple removal of the gland. In the author's experiment one-third of the dogs did not die; monkeys showed as only symptom cyanotic discoloration of the face, but cats generally did not survive. These peculiar results are best explained by the presence of parathyroid glands, which are really embryonal thyroid tissue, able to assume thyroid function only when a large portion of the thyroid is removed. Cats require much more thyroid than dogs, hence the parathyroid tissue is generally insufficient in amount to keep the animal alive. Under normal conditions the parathyroids probably have no functions. Urine analysis shows that metabolism is less active in thyroidectomized animal, since the soft parts of the body especially are destroyed more rapidly. Examination of the organs gave evidences of hyperemia when death set in soon after the operation and interstitial changes with a more chronic course. The effects upon the blood show themselves in a loss of hemoglobin and red cells and an increase of leucocytes. The function of the gland is probably to neutralize a substance which destroys the red cells and alters the vessel walls. If this toxin is present in large amounts, acute symptoms, such as twitchings and tetany, will follow, while with small amounts, the tissues are so altered that cachexia and disturbances in growth are the consequence. The amount of toxin does not depend on the species of animal, but upon the food; it is greatest with food rich in nuclear elements, and is thus a nucleoproteid. The lining cells of the typhoid form an iodized globulin which unites with the poisonous proteid, forming thyrotoxin, this in time is split up into two harmless principles, another nucleoproteid and an iodized globulin, which pass into the lymph and blood vessels.

Adrenalin and Liver Glycogen.—In acute adrenalin poisoning, if the animal does not die too rapidly, the amount of glycogen in the liver is diminished according to W. B. DRUMMOND and D. N. PATON (*Jour. of Physiol.*, May 3, 1904). In chronic adrenalin poisoning the glycogen is not necessarily altered. The diminution of this substance is probably the result of degenerative changes present in cells of the central zone.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 250 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text, illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in registered letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, JULY 16, 1904.

SUMMER LABORATORIES.

WITH the close of the academic year research work in the various laboratories of our medical centers of necessity comes almost to a standstill, and the question for the laboratory worker, how and where to spend the summer vacation, if not already settled, at once becomes an important problem. With many the European laboratories, which remain open during the greater portion of the summer, are the ultima Thule. Large numbers, however, whose means do not permit the costly European trip remain at home and read and plan their winter's work at some quiet place in the mountains or at the seashore. Still others throw all thoughts of work to the winds and forget the laboratory in the hot, dusty city by the blazing camp-fire along the mountain stream, or amid the delights of a yachting trip, etc.

But after all the rest is to a great extent enforced, and the enthusiastic student yearns for his work, and after a few weeks of rest considers himself in banishment during the remainder of his vacation. If only he could combine his recreation with work away from the usual seat of his activities he would gladly embrace the opportunity. In this respect our biological cousin is more fortunate. For him there is the marine labora-

tory with all its delightful associations. Here he can enjoy the cool ocean breezes, away from the humdrum of the winter's classroom, and still work, and work, indeed, under the most favorable conditions, in contact with students and masters from far and near, the best and most powerful impetus and inspiration for research.

Is it not possible for more medical investigators to join this circle? They could only profit thereby, and perchance the biologist might also gain by the association. Surely the Grenzgebiet between medicine and general biology is sufficiently wide that workers on both sides could well occupy the same ground together. There is the great field of comparative pathology, the tillage of which will unquestionably require the collaboration of the biologist and the pathologist.

We are only now entering upon an era, in which the rôle of the protozoa in human pathology is beginning to dawn upon us, and in which the progress has been and will be painfully slow, if the medical man unaided is obliged to find his way through the maze of developmental phases in the life history of an organism, which even to the trained specialist are often so bewildering. The great good which would result from such an association cannot be doubted and is well exemplified in our country by the classical work of Councilman and his medical coworkers on the one hand and Calkins on the other.

For such work there can be no better field than the seashore or inland lake with its abundant flora and fauna. Mollusks, crustacea, echinoderms, tunicates and fishes are commonly infected with parasitic sporozoa and thus represent most valuable material for studies in this direction. Our cancer investigations would possibly be more fruitful of results if our knowledge of these low forms of animal life were more extended, and if the student of pathology could have the protozoan specialist at his side to advise and guide his research.

We should not only include the human pathologist, however, in our circle at the marine laboratory, but the physiologist and physiological chemist as well. To a certain extent the latter have already entered the fold and after a fashion have taken precedence over the pathologists, but still their number is small.

A magnificent example of what a marine laboratory should be is seen in the famous station at Naples. In our country there is Beaufort, Cold Spring Harbor, and Woods Hole, with the laboratories of the United States Fish Commis-

sion, and the many botanical laboratories throughout the country offer certain advantages as well as the more strictly zoological stations. Woods Hole has been the Mecca of the American biological student, and now, with Cold Spring Harbor, since the Carnegie Institute has granted its aid, these may become what many have been dreaming of—summer laboratories for the study of the applied biological sciences.

IS CATHETER LIFE A THING OF THE PAST?

NO MORE serious consideration is likely to be forced upon the conscientious general practitioner than the solution of the problem how to drain the male bladder when the natural opening is partly blocked.

An eminent authority has recently stated that the mortality of catheter life should be regarded as 100 per cent. This is an astounding assertion, particularly in view of the fact that many men have been catheterized for a long period without suffering any apparent discomfort. Nevertheless, text-books, which are based on observations made four or five years ago, give the average life under the catheter as five years. It is now stated by the authority above alluded to that the period is nearer three years than five.

It becomes then a question of very grave importance, what is to be done with men who are approaching a condition which, other help failing, can be relieved only by recourse to the catheter. Are they to be advised to pursue a course of treatment which is confessed by all to have a high percentage of fatality? They cannot be allowed to continue living with undrained bladders in constant danger of ascending ureteral infection and pyonephrosis.

At the recent meeting of the American Medical Association, Syms, Goodfellow and Young reported a series of over 150 cases of perineal prostatectomy in which the average mortality was but a fraction over three per cent.

This is absolutely revolutionary. It is based upon the statements of three surgeons whose standing is such that no possible exception can be taken to the figures. The general practitioner must therefore conclude that an entirely new light has dawned on the subject of treating prostatic hypertrophy. The text-books on the surgery, which so commonly ascribe a mortality of from 20 to 30 per cent. to the operation of enucleation of the prostate, are obviously as pernicious for the practitioner as they are dangerous to the public. Their teaching is as obsolete as the most

egregious inaccuracies of the old masters, and should possess for the progressive practitioner simply an historic interest. There is, however, resident in every human being, a natural antipathy to the knife, and no half-hearted physician can possibly convince the patient, who is in the very early stages, at which time conviction is most earnestly to be desired, that he should undergo an operation for the relief of a condition for which, from time immemorial the catheter has been employed. The physician himself must be absolutely convinced of the desirability of surgical intervention, for without enthusiasm on his part the public will certainly continue to live the life of their grandfathers.

Do the facts actually justify the awakening of such enthusiasm?

In the *Annals of Surgery* for June, 1904, Francis S. Watson, of Harvard, presents an invaluable sketch of the history of the operations for prostatic hypertrophy from the earliest times to the present. It is impossible to condense a tithe of what this author has to say in a short editorial note. But an acquaintance with the monograph may be safely urged upon every one who has cases of prostatic hypertrophy under treatment.

That the subject-matter is presented in a scrupulously fair and judicial manner is evidenced by the standing of its distinguished author; and that he has made a most successful effort to be conservative, surely to the point of satisfying the most non-surgical reader, will be evidenced from the following excerpt from his conclusions:

"Radical operative treatment," he says, "has not as yet reached the status at which we are justified in saying that all cases of prostatic hypertrophy should be submitted to it as soon as the condition is clearly made out, and has begun to give rise to slight symptoms. But we are justified in saying that patients should be given the benefit of it at a much earlier stage of the malady than it has been customary to apply it, and that where it is applied by those skilled in its performance, as soon as the hypertrophy can be clearly detected by examination, and if at the same time it has already given rise to well-marked symptoms, and the patient's condition is not unfavorable to the performance of an operation of this magnitude, the mortality of the operations, were they applied at that time, would be a trifling one, and their risks not nearly so great as entailed by the use of the catheter, assuming the latter to have been employed instead and under the same conditions."

To those men who are not innately averse to being convinced, these facts, as admirable an array as could well be found in the wide domain of surgery, must be convincing.

Such men will ask, "If we agree to advise operation, what technic is to be used?" Watson says: "The total removal of the gland by the perineal method is the operation of choice." There seems every reason to believe that he is correct. Only recently Young, of Baltimore, did an immense amount of his characteristically able work in exploiting the Bottini operation, but after a wide experience with it he has discarded this technic for that of enucleation through the perineum.

One impressive factor in the modern treatment is the rapidity with which the patients recover from the operation. Syms considers it distinctly disadvantageous to keep them in bed longer than is absolutely necessary, and he actually reported a series of cases in which the men were up and walking about in from twelve to thirty-six hours after operation.

The general practitioner then can conscientiously say to his patients that the operation would confine them in bed for a much shorter period than the average capital operation. What can he say to him as regards the anesthetic? It is well known that many patients dread anesthesia much more than the actual operation or even the tedious period of convalescence.

Martin B. Tinker, of Cornell, states that by using the massive infiltration method of Matas in the neighborhood of the ischiatic tuberosity, a half per cent. solution of eucaine will produce absolute anesthesia of the two nerves supplying the entire perineal region and the prostate. He has successfully and on several occasions removed prostates in this manner, the patients complaining simply of the discomfort of their position upon the table.

Modern methods and specialization have placed this operation upon a basis which is clearly unappreciated by the general profession. This ought not to be. The condition is too common a one to be allowed to be in any sense neglected. If this operation, which in every text-book is regarded as a capital one, has in truth been relegated, as it seems to have been, to the domain of minor surgery, the sooner the general practitioner knows it the better. The many victims of cystitis who constantly reinfect themselves with septic catheters should hail with delight this easy escape from the tyranny of their prostates.

ECHOES AND NEWS.

NEW YORK.

Accidents in New York.—During the year 1903 there were reported in New York City 7,912 deaths and unaccountable disappearances. Augmented by the Slocum disaster the records of the present year are likely to surpass this number by many hundreds.

Shifts Sanitary Heads.—Health Commissioner Darlington, for the second time in as many weeks, has temporarily shifted four of the five sanitary superintendents. About two weeks ago he made a sweeping change in the assignments. Last Monday he announced the following transfers: Dr. Moore, from the Bronx to Queens; Dr. Shields, from Manhattan to the Bronx; Dr. Sprague, from Richmond to Manhattan, and Dr. Murray, from Queens to Richmond.

The Sick Children's Mission.—The Sick Children's Mission of the Children's Aid Society began its work this summer in the opening days of June. Visiting physicians have been assigned to districts covering Manhattan from the Battery to Harlem, druggists have agreed to fill all medical prescriptions at cost price, and in many special cases food for sick and convalescing children is furnished from the mission headquarters. The mission also employs a force of experienced visitors, most of whom are trained nurses, to investigate the circumstances of every family in which a sick child is being treated. These visitors are required to ascertain the cause of distress, why the family is unable to employ a private physician, suggest means of obtaining employment to those out of work, and especially to give the mothers instruction regarding the management of their children and the sanitary care of their homes. Families who by reason of sickness or temporary want of employment are unable to command the attendance of a private physician are invited to apply, either personally or by postal, at 287 East Broadway.

Physicians as Inspectors of Tenements.—The public schools having closed, the Health Department physicians have taken up the "summer corps" work, and fifty doctors are engaged in inspecting the tenement houses of the city. Dr. Darlington says:

"This year, with the experience gained from last year's work, we expect to do almost untold good in the tenements. Of course, ignorance on the part of mothers as to the proper care of children is an obstacle, but gradually we hope to overcome it to a great extent. For the benefit of those mothers who do not know the rules of health the doctors carry with them cards on which is printed good advice. These cards are to hang on the walls, thus placing before the mother at all times full directions for properly feeding children. Mothers are advised to abstain from drinking beer or tea in quantities if their children are not bottle-fed. If children are fed from the bottle they are advised they be fed from the bottle the parents are advised to depots. In addition to their work in the tenements, members of the corps are required to inspect the milk vendors' shops, to close up all places violating the health ordinances, and to empty into the streets milk that is above the proper temperature, 50° F. Besides, they distribute coupons good for bottled milk at any of the Straus depots and in the parks or on recreation piers, and give out tickets for children's admission to the seaside hospital of St. John's Guild and to the floating hospital. I believe that the work of the corps will reduce the mortality rate this year even more than it did last year, and that with increased experience and increased facilities from year to year mortality among infants will be merely nominal."

PHILADELPHIA.

Site for State Hospital.—The commission appointed by the last legislature to select a site for the State Hospital for the Feeble-Minded and Epileptics has chosen a tract of land in Chester County, near Spring City. The land borders the Schuylkill River.

Germantown Hospital.—The new pay-patient building will be ready for occupancy the latter part of July. Ground has been broken for a new laboratory to cost \$2,500, the gift of Mrs. J. D. McIlhenny. Anna T. Jeanes has given to the hospital a large lot and house.

Society of Tropical Medicine Incorporated.—The American Society of Tropical Medicine has been incorporated in the Court of Common Pleas of Philadelphia. The society is to maintain permanent headquarters in this city, but its two hundred members will be from all parts of the United States. The officers are: President, Dr. Thomas H. Fenton; vice-president, Dr. J. J. Kinyoun; secretary, Dr. Joseph McFarland; assistant secretary, Dr. J. M. Swan; council, Drs. R. G. Curtin, Judson Daland, Allen J. Smith, and W. M. L. Coplin.

Smallpox Quarantine Raised.—For the first time in three years there was a time during the past week when no place was under smallpox quarantine, and the disease in question is practically eradicated. Vaccination has been the only efficacious means of checking the epidemic. During this summer a house-to-house canvass of the city is to be made with the object of vaccinating all those who have as yet failed to comply with the request of the authorities.

List of Notifiable Diseases Increased.—After many months' consideration of the subject, the Board of Health has decided to increase the list of notifiable diseases. The revised list will include cholera, yellow fever, malarial fever, typhoid fever, typhus fever, scarlet fever, smallpox and varioloid, chickenpox, diphtheria, diphtheritic croup, cerebrospinal meningitis, measles, rubella, whooping-cough, tuberculosis (in any of its forms), pneumonia, erysipelas, puerperal fever, plague, trachoma, leprosy, tetanus, hydrophobia, and anthrax. Veterinary surgeons are required to report cases of glanders, anthrax, tuberculosis, tetanus, and rabies. In the past it has been incumbent upon the medical profession to report all cases of smallpox, diphtheria, typhoid and scarlet fevers, but under the new regulation the list is increased manifold. The most notable addition is that of pneumonia.

CHICAGO.

Sisters' Hospital Assured.—Within a few months the Columbus Hospital at Lake View Avenue and Deming Place, under the management of the Missionary Sisters of the Sacred Heart, will be an assured fact, sufficient funds having been already received to insure the success of the venture. The hospital will be five stories in height, and will be equipped with 150 rooms and 20 nurses.

Appointment of Dr. Szwajkart.—Dr. Adam Szwajkart has been appointed by Governor Yates a member of the West Park Board, to represent the Sixteenth Ward. He is a graduate of the University of Krakow, and of the Medical Department of the University of Illinois.

Semi-annual Death Report.—For the first six months of the year, according to the weekly bulletin of the Chicago Department of Health, the total deaths, 14,131, were 1,070 fewer than during the corresponding period of 1903, and the death rate, 14.69 per 1,000, was 10.9 per cent. less. There were 379 fewer deaths under five years of age—a reduction of 10 per cent.; but

this decrease was entirely among those of the milk-feeding period. Of these there were 1,014 deaths, as compared with 1,660 last year, a decrease of 646 deaths, or nearly 40 per cent. The quality of the milk supply and the rarity of contagious diseases account for this marked reduction. There was a 6.4 per cent. increase of the deaths among the aged, those over sixty years old. Only five of the important causes of death show increases, namely, apoplexy, 93; Bright's disease, 106; consumption, 113; cancer, 42; and violence, other than suicide, 58. The following show the decreases indicated: Acute intestinal, 27; bronchitis, 134; convulsions, 30; diphtheria, 89; heart disease, 14; influenza, 63; measles, 221; nervous diseases, 171; pneumonia, 50; scarlet fever, 111; smallpox, 39; suicide, 52; typhoid fever, 107; whooping-cough, 187.

Low June Mortality for Chicago.—It is announced by the *Chicago Board of Health Bulletin* that the mortality for June was low. Among other things, the *Bulletin* says: "Temperature conditions during the last two months have given Chicago the lowest June mortality record, not only in her own history, but among all the great cities of the world. May averaged 57°, about 1° warmer than the record of thirty-three years. June averaged 65°, about 2° cooler than the record. The warmer May and the cooler June were especially favorable to the health of the young, and it is the mortality among the young, those under five years of age, that constitutes the most important factor of the general death rate. There were 1,745 deaths at all ages reported during the month—an annual rate of 11.01 per 1,000 of the population, and 24 per cent. less than the average June rate of the previous decade, which was 14.52. Of this total there were 430 under five years of age, or less than one-fourth (24.6 per cent.). Ten years ago, 1894, there were 2,033 deaths at all ages in the month of June, of which number 959 were under five years of age—a proportion of nearly double (47.1 per cent.) that of June, 1904. Death-rates are diminishing, health is improving, and the duration of human life is increasing all over the world—but in no other large city in the same proportion as in Chicago. This fact is becoming so generally recognized that the incredulity of a decade ago is now well-nigh overcome; that incredulity which found expression in the dictum of the most eminent vital statistician of the period, commenting on the death-rate of Chicago in 1893, that "a death rate of less than 18 in the thousand in a city of a million population is a sanitary impossibility." The city of London has a population of nearly five million; its death rate last year was 15.6 in the thousand. Chicago's diminishing death rate is due largely, if not entirely, to the conservation of the health and lives of the young—those under five years of age."

GENERAL.

American Electro-Therapeutic Association.—The fourteenth annual meeting of the American Electro-Therapeutic Association will be held at the Inside Inn, St. Louis, Mo., September 13, 14, 15 and 16, 1904. The scientific sessions will be held only in the mornings, leaving the afternoons free in which to visit the attractions of the Fair.

Doctors to Meet in Denver.—The American Academy of Ophthalmology and Oto-Laryngology will hold its ninth annual meeting in Denver, Colo., August 24, 25 and 26, 1904. Dr. Edward Jackson, of that city, is president, and Dr. D. T. Vail, of Cincinnati, is secretary.

Popular Medical Fads.—The daily press during the past week has again aired the fantastic theory that appendicitis is a natural sequel to influenza. It is now

asserted that influenza associated with a meat diet is an almost unfailing cause of the fashionable disorder.

Mississippi Valley Medical Association.—The Thirtieth Annual Session of the Mississippi Valley Medical Association will be held at Cincinnati, O., October 11, 12 and 13, 1904, under the presidency of Dr. Hugh T. Patrick, of Chicago. The headquarters and meeting places will be at the Grand Hotel. The annual orations will be delivered by Dr. Wm. J. Mayo, of Rochester, Minn., in Surgery, and Dr. C. Travis Drennen, of Hot Springs, Ark., in Medicine. Request for places upon the program, or information in regard to the meeting, can be had by addressing the secretary, Dr. Henry Enos Tuley, Louisville, Ky., or the assistant secretary, Dr. S. C. Stanton, Masonic Temple, Chicago, Ill.

Clothing as Physical Records.—An excellent illustration of the value of records has been afforded lately regarding the question of physical degeneracy. A firm in the north of England has compared the measurements for clothing made two generations ago with those of today, the results going to show that chest and hip measurements are now three inches on the average more than they were sixty years ago. The same conclusion is reached by the experience of the manufacturers of ready-made clothing.

Cholera Epidemic in Asia.—A dispatch from Odessa says that the Government is establishing with all haste a medical and military cordon in Trans-Caucasia against the importation of cholera from Persia. There are said to be 300 deaths daily in Teheran and that the cholera epidemic is rapidly spreading throughout Northern Persia. Minister Allen, at Seoul, says he has learned from a missionary surgeon that cholera has crossed into Manchuria and appeared at An-Tung.

Newark's Water Supply.—In his report to the Board of Health, Dr. R. N. Connelly, the city bacteriologist, shows that Newark's \$6,000,000 water supply is contaminated, and that the source of impurity is at the headwaters of the great system. So far, the water taken from faucets in various parts of the city has been found to be practically pure. But the fact that impurities were in evidence in the water taken at various points in the watersheds was sufficient to alarm the Health Board, and in consequence a trip will at once be made to the sheds and a thorough inspection will be made with a view to locating the cause of the contamination.

Health of Russian Army.—An official report on the health of the army in Manchuria shows that up to June 26 the officers and men in hospital in the field reached a total of 7.136 per cent. and 3.943 per cent. respectively of the whole force. If the wounded sent to the rear were included the percentages would have been 10.24 and 6.51 respectively. After the rains began on July 9 the percentage of officers in the hospitals became 8.383 and of the men 4.646. The proportion of infectious cases rose from 2.19 to 8.52, including 1.99 per cent. of dysentery cases.

Milk Dispensaries in Baltimore.—Five milk dispensaries have been opened in Baltimore under the auspices of the Thomas Wilson Sanitarium, and modifications of milk will be supplied (three pints) at the rate of ten cents a day. The milk is intended not only for infants, those who are already sick or ailing, but also for well children, the circumstances of whose parents would otherwise prevent their securing a proper diet. A card from a physician or dispensary insures the distribution of the specified mixture to an applicant as long as required, the milk being supplied in individual feeding bottles, which are returned the following day. An experienced nurse or a physician is in attendance at each station, and in general an admirable dispensary system has been arranged to supplement the work of the

sanatorium, which, during the summer months, each year cares for a number of children suffering from intestinal disorders. The possibilities of more searching preventive work through a dispensary system will be given a thorough test.

Cancer Research.—The English General Committee of the Cancer Research Fund, at its meeting in London, on July 8, made an important report, no doubt, but, we regret to say, one that carries more negative than positive information. We are simply told that cancer is not an infectious ailment, is not transmissible from one species to another, is not caused by a parasite, that radium has been found to exercise no curative effect, that a serum has been discovered from which good results are hoped and that the cancer cell can reacquire powers of self-propagation. Thus the real cause of malignant growths is yet undiscovered. That we must still submit to surgical operation as the one and last resort is the conclusion forced upon us. The greatest danger is in delaying such treatment. The Prince of Wales, who presided at the annual meeting of the committee, gave the true practical turn to the proceedings when he urged the public to "*consult the surgeons on the first appearance of any cancerous symptoms.*"

The Red Cross in Japan.—The following extract from a private letter sent by an English visitor in Tokio has been printed in the *London Times*: "One admires the way the women of the country fall into their places as a support to the army medical service in the war. All the male personnel are drafted from the hospitals in the home territory and join the columns of the field army. The women nurses step into their places in the hospitals in Tokio and elsewhere, and carry on the work of nursing sisters. They are all fully trained during a three years' course at hospitals belonging to the Red Cross Society or at other civil hospitals. I recently visited the Juntendo Hospital here, and saw the system of training. This hospital, which is the oldest and at the same time one of the newest in construction, as the old buildings are being pulled down and buildings on a new plan erected, employs only women nurses, and trains them in the hospital. They go through a theoretical and practical course of about three years after they have been trained. This is only one example of the resources of the country in supplying the hospitals with trained female attendants. I have just seen a large operation at the University Hospital, where the instruments were looked after and the dressings arranged, etc., by Japanese women, and nothing could have been done more skilfully or more in accordance with the principles of asepsis. There are thousands of Japanese women of every class of society fully trained, and as expert and sympathetic as any of our own women can be, with full knowledge of their folk such as no newcomer can ever have, working under definite Government regulations in the army hospitals. Our own women might well take a lesson from them in the way they do their work, without ever considering whether they are getting kudos or not, and never thinking of gaining that sensational form of experience, 'for a woman, which consists in 'going to the front.'"

Remedy for Leprosy.—The *London Times* correspondent at Rangoon, Burmah, says that Capt. E. R. Rost of the Indian Medical Service has succeeded in cultivating the bacillus of leprosy. He has made a substance from the cultures which he calls leprolin, and which, when injected into lepers, has marked beneficial action, alleviating the symptoms of the disease. Captain Rost has discovered that the method of growing the bacillus of leprosy is to extract the salts from the nutrient media, and that the bacillus of leprosy will not grow in the presence of the salt. In order to make

such nutrient medium he distills beef extract soaked in pumice-stone in a current of superheated steam, and obtains a medium in which the bacillus of leprosy and, also, that of tuberculosis grows with the greatest ease. Leprolin is made on somewhat similar lines to those first employed by Professor Koch in the manufacture of tuberculin. Over one hundred cases of leprosy are being treated in Burmah by injections of this substance, and the treatment is also being tried in thirty places in India. Already four cases have been reported cured, and in the great majority of those under treatment the improvement is marked.

Railroad Accidents.—It seems, according to the annual report of the Interstate Commerce Commission, that during the year ending June 30, 1903, no less than 86,393 persons were either killed or injured on railroads in this country. Rather appalling figures, it would seem—figures that suggest campaigns and battlefields, rather than the sober report on the conduct of certain business enterprises. It is interesting and instructive to compare these figures with the showing made by the railways of Great Britain during the corresponding period. These figures are also from an official report and reflect on the American management in no flattering manner. For example, Great Britain's 22,380 miles of railways carried in 1903 nearly twice as many passengers as were transported by the 203,132 miles of railways in the United States, and yet in the United Kingdom there were only 235 collisions and derailments, as against 10,643 in this country, and only one passenger killed for every 47,793,320 carried and one injured for every 1,540,745 carried in the United Kingdom, as against the American figures given above. Conditions in the two countries differ doubtless, but conditions alone can hardly account for so amazing a difference in the railway casualty lists of the two countries. Negligence verging on the criminal seems indicated somewhere in the American system.

Doctors and Their Fees.—In a medical case which was tried in London before Mr. Justice Darling last week it was stated that the usual fee for attendance and medicine in the poorer districts of London is 6d. As a matter of fact the 6d. fee is by no means confined to the East-end. In Chelsea, for example, which is not a slum district, a doctor has recently set up a dispensary where advice and medicine can be had for 6d. In point of fees there is a curious contrast between the medical profession in England and Ireland. In the suburbs and country districts of England medical men of the highest standing often charge no more than 5s. a visit, while in Ireland doctors of the same standing never dream of charging less than £1 1s. At first sight it appears as though only the well-to-do could afford the luxury of a doctor in Ireland, but although Irish doctors consider it beneath the dignity of their profession to charge less than £1 1s. they often consider the pockets of their patients by paying four or five visits for that sum.

The Heatherside Sanatorium.—The opening by the Prince and Princess of Wales of the new country extension of the Brompton Hospital for Consumption and Diseases of the Chest at Heatherside, Camberley, Surrey, England, took place on June 25 in the presence of a large and interested gathering. In the unavoidable absence of the Earl of Derby (president of the hospital), an address to their Royal Highnesses was read by Lord Cheylesmore, in which it was stated that the foundation of the original hospital in the Fulham Road had been laid in 1844 by the late Prince Consort, and the foundation-stone of the extension wing in 1879 by King Edward VII. (then Prince of Wales), and that the institution had from its commencement enjoyed the sup-

port and patronage of the royal family. A further development of the hospital was the sanatorium and convalescent home to be opened that day by their Royal Highnesses. This new building was intended for the open-air treatment of tuberculosis and for convalescent cases from the parent institution, and was designed to provide accommodation for 100 patients of both sexes. The need for such an extensive development had been rendered urgently imperative in consequence of the advances of modern science in the treatment of consumptive patients, also by reason of the increasing impossibility of obtaining admission for such convalescent patients to any of the existing convalescent homes. The cost of the site and building, furnishing, etc., would amount to £70,000, and the maintenance of the new extension would entail an increased annual expenditure of some £10,000. Being one of the first institutions of the kind for treating gratuitously on the open-air system the poorest classes from all parts of the country, the committee felt that it was entitled to the support of the public at large.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, June 18.

THE SECRET OF PERPETUAL YOUTH—SKIPPING AS AN EXERCISE—ABUSE OF HOSPITALS—THE PUBLIC HOUSE AS A SOURCE OF CONSUMPTION—ANOTHER INFALLIBLE CURE FOR CONSUMPTION—DEATH OF A PROMISING BACTERIOLOGIST.

PROFESSOR METCHNIKOFF, of the Paris Pasteur Institute, is distinctly what the French call an *homme sérieux*, otherwise one would be tempted to suspect that he amuses himself by practising on the gullibility of the public. Every now and again he leads unwary persons to imagine that he has discovered the secret of perpetual youth. He has lately been unbosoming himself again on the subject of old age, which he regards as a chronic disease, the cure of which is not impossible. On this text several of our newspapers have for some days past been discoursing most eloquent nonsense. For this the Russian investigator must to a large extent be held responsible, for he throws out oracular hints as to specific serums that are to slay the microbes which lurk within the body seeking for an opportunity to lay waste the house of life. This supplies a basis on which the journalistic imagination constructs a theory that there is a microbe of old age which must therefore be regarded as a contagious disease. The new Pentacle of Rejuvenescence, when looked into, fades into the mere shadow of a dream. The serums which are to enable the organs and tissues to withstand senile decay are yet to be found, and when found their utility is purely theoretical. So far from having found a cure for old age Metchnikoff has at present nothing better to offer us as a preventive than soured milk. Apart from the degenerative changes in the kidney, liver, brain and other organs which are the expression of senile decay, the main source of danger to man, according to Metchnikoff, is his own large intestine. This is a haunt of microbes which poison the system by their baleful chemical products. His account of the intestinal flora reminds one of the description of the Upas tree breathing death to all who come within its sphere of influence. The soured milk is intended to kill this pestiferous vegetation. But the most effective remedy would be to free man from the breeding ground in which it grows so luxuriantly, by removing the large bowel

which is a superfluous relic of a remote ancestry, and is now a cesspool of filth that is a standing menace to health and to life. Metchnikoff is not prepared to advocate this heroic treatment at present, but he believes that in the distant future the operation will become general. He is evidently unaware that it has already been performed by an English surgeon, Arbuthnot Lane, of Guy's Hospital, London, not exactly with the intention of making man immortal, but as a means of relieving constipation which proved refractory to treatment, and thus indirectly prolonging life. Lane's account of the process of reasoning by which he screwed his courage to the point of cutting out the large intestine is interesting. While operating on a case of recurring obstruction of the large bowel at the hepatic flexure which had been diagnosed by the patient as being due to cancer of the hepatic flexure and by his medical advisers as renal colic, he became alive to the mode in which constipation of adhesions and of a mesentery which were able to interfere very effectually with the mechanics of the cesspool of the intestinal tract. It was then apparent that the condition of the appendix was entirely secondary to that of the secum, and to obtain complete relief from symptoms it was necessary in many cases not only to remove the appendix but also to divide the constricting bands which controlled the lumen of the large bowel. This he did in a large number of cases, in many of them with the greatest advantage. He endeavored to render the benefit as permanent as possible by insisting on great attention being paid to the bowel subsequently by the use of purges, enemata, massage, exercises, etc. In a certain proportion of the cases, however, a recurrence of the symptoms ensued. He then came to the conclusion that these patients could not be benefited permanently by the treatment of effects, as no satisfactory means of dealing with them were available, and that to ensure peace and comfort to the sufferers in the future the cause of all the trouble must be removed. It was apparent that these patients lost as much by the absorption of ptomaines, etc., from the feces during the prolonged stay in the large intestine as they gained from the absorption of any nutritious and useful material. Some geographical bore complained that Francis Jeffrey had d—d the North Pole, and Sydney Smith tried to soothe him by saying that he had heard the editor of the *Edinburgh Review* speak disrespectfully of the equator. He could not have spoken more disrespectfully of it than Lane speaks of the colon. Not believing, says he, that the colon plays a very important part in the present state of civilization, he determined to divert fecal matter altogether from this part of the bowel, to convey it directly from the ileum into the upper part of the rectum, or into the sigmoid if the rectum did not lend itself readily for the purpose. He knew from the results of this operation in cases of cancer that patients of the class referred to would not be exposed to any unjustifiable or serious risk, and would not be deprived of any useful function. At first he attempted to exclude any passage of feces into the cecum by establishing between the end of the ileum and the rectum or sigmoid an anastomosis sufficiently large to prevent subsequent closure. For this purpose it is necessary to build the ileum into the large gut so that the circumference of the combined bowel shall not exceed the original circumference of the large intestine. This is done by cutting away half the circumference of the ileum and a corresponding amount of that of the large bowel and lacing together the edges of the apertures. Lane soon came to the conclusion that the only certain means of putting the large bowel entirely

out of gear, when the rectum is overloaded with feces, is to make an ordinary lateral anastomosis between the ileum near its termination and the upper part of the rectum or the sigmoid as may be most convenient. After this is done the ileum is divided between the seat of anastomosis and the cecum. This arrangement is safer than the division of the ileum and the implantation of its proximal end into the large bowel. Lane says he is sure that the principle involved in the cutting off from the intestinal tract of almost the entire length of the large bowel, "which to a certain class of persons is a distinct detriment rather than a source of strength, will have a very extensive application in future in surgical practice."

Dr. Francis T. Bond, of Gloucester, has hitherto been best known to fame as the founder and energizing spirit of the Jenner Society and a sturdy champion of what antivaccinists call the "Jennerian rite." He has now come forward (in the *National Review* for June) as the strenuous advocate of skipping as the best form of exercise for the preservation of health. To most people the mention of skipping will only bring back memories of early childhood. But the trained athlete, says Dr. Bond, knows that it holds a high place in the repertory of exercises which the candidate for athletic honors of whatever kind practises in order to develop firmness in his muscles generally, capacity of breathing power and the maintenance of sustained effort. Jem Mace, a well-known hero of the prize ring in the middle of Queen Victoria's reign, used it largely to get himself into fighting condition and especially to develop agility. One of the special advantages of skipping is said to be the ease with which it can be graduated to the capacity of the feeblest tyro. It is impossible to skip except in a rhythm of some sort, "and the skipper who adjusts his movements to a definite rate per minute may be assured that in ten minutes he is expending just ten times the energy that he expends in one minute, with a greater certainty that he can have in the case of any other exercise except walking." There are, we are told, few bodily troubles except those which depend upon radical unsoundness of the vascular system, involving the risk of hemorrhage as the result of sudden exertion, that will not be benefited by skipping. For the melting of "too, too solid flesh" there is nothing like it. The result of this strong recommendation from a physician of repute like Dr. Bond, will doubtless be that numbers of elderly citizens who, like Hamlet, are fat and scant of breath, will take to going through intricate evolutions with the skipping rope in their back gardens.

At the International Home Relief Congress, held last week at Edinburgh, one of the subjects discussed was the abuse of hospitals by well-to-do people, a very sore point with general practitioners in this country. Professor Glaister, of Glasgow, said that from statistics it appeared that the number of applicants for free relief was increasing every year, and that the proportional increase was greater than was warranted by the natural increase in the poorer population. If the claim for free medical attendance were to be satisfied in proportion to the increased demand for it, a time would soon come when some step must be made either to limit the extent to which such aid was to be given, or to test the need of the applicants for such eleemosynary assistance. The need for inquiry into the fitness of applicants was so obvious that a movement in that direction had taken place in various large hospital centers. Meanwhile, something might be done by hospitals setting apart a ward or wards for patients who are willing to contribute some portion of the expense of their maintenance. The key to hospital reform seemed to him to be a method

which would insure that the functions of an hospital were being directed and kept in proper channels—namely, for the benefit of the poor for whom they were intended. Whether that method was to be found in an income test, in the establishment of provident dispensaries to which applicants for medical relief would contribute something per visit to a common fund, and in the cooperation of hospital and dispensary authorities, the general public, and the medical profession, was a subject requiring serious consideration. Dr. Clouston, President of the Royal College of Physicians, Edinburgh, said there was a danger of lowering public opinion and the self-respect of the population by such practice as the abuse of hospitals. It was a great social question, for if any community accepted, a great injury was done to the whole body politic. Dr. James Ritchie, president of the Obstetrical Society, Edinburgh, said the present system of hospital relief tended to pauperize the people. He should like to see put into operation some national scheme of insurance against sickness, such as was in operation in Germany. After a good deal of discussion the following resolution was carried: "That, in the opinion of this Congress, the time has now come when, with a view to the proper direction of charitable effort and the prevention of hospital abuse, close relation should be established between the hospitals, dispensaries, the medical profession and the public, for the regulation of indoor and outdoor relief of sick poor by the institution in every populous center of a general hospitals committee, composed of representatives of (1) hospital, dispensary and nursing boards, (2) hospital and dispensary staffs, (3) general practitioners, (4) contributors, and (5) wage-earning members of the community, for the purpose of determining, "inter alia," (a) the conditions of admission to hospital and other medical relief, (b) the collection of revenue, (c) the prevention of overlapping, and (d) such other questions as experience may suggest."

Dr. Niven, Medical Officer of Manchester, some time ago brought a strong indictment against the public-house as a source of phthisis, supporting his contention by a mass of statistical evidence. This view is shared by Dr. Arthur Ransome, who is one of our leading authorities on tuberculosis. In a paper published in the *Medical Chronicle* for May, he says the public-house, viewed from a sanitary point of view, is certainly an object of suspicion as an infective center. It not only shares the likelihood of tuberculosis contamination with other places of public assembly, but has special dangers of its own. Its bars and taprooms are usually dark, dirty and ill-ventilated. They are often overcrowded, especially in the evening, by crowds of workmen and loungers, many of them consumptives. These people spit freely both into the spittoons, containing sawdust or sand, and onto the floor. The floors are for the most part covered with dry sand or sawdust, and are only swept occasionally, perhaps once or twice a week. The sputum from their occupants, much of it charged with virulent tuberculous material, is mixed with the sand or sawdust; it is dried up and ground into fine powder under the heels of the drinkers. When it is swept up, some of it flies into the air, and floats there on delicate wings of mucous or epithelial scales. It is thus capable of being conveyed into the lungs of susceptible persons, and of transmitting the disease. Add to all this risk the probability that spray from the coughing of some consumptive may also pass into the air breathed by others, and we cannot be surprised that tuberculosis infection arises from this source. Dr. Ransome endorses Dr. Niven's recommendation that public-houses should be placed under strict legislation in regard to cleanli-

ness, and that spitting in public-houses should be forbidden.

A retired medical practitioner of Cornwall, who is now Mayor of Dartmouth, has announced to all whom it may concern that he has discovered an infallible cure for consumption. It is scarcely necessary to say that this intimation has been conveyed to the public not through the medical journals, but through the lay press. The Mayor considers Koch's treatment entirely wrong because it is "at variance with nature." His own method has at least the merit of simplicity. All you have to do is to take bacilli infinitely more powerful than that which produces tuberculosis and inoculate the patient with them. The stronger will kill the weaker, and will then in the most accommodating spirit follow their victims into the silent land. Dr. Searle has written to Mr. Rockefeller asking for a part of the million and a half dollars which the American millionaire is understood to have offered to any one who shall discover a cure for tuberculosis. The doctor wants nothing for himself, however; what he needs is a laboratory in which to prosecute his researches. It would seem that he also requires patients on whom to try his treatment. He does not ask for doubtful cases, but for such as are practically hopeless. "Place them under my treatment," he says, "and I say unhesitatingly they will recover." He at first refused to reveal his method, saying that he was writing a book in which it would be fully known. Within the last few days he has announced that his idea is to fight the germs of tuberculosis by the aid of typhoid germs. He declares that in his experience, and the experience of many physicians of long standing, they have never met with any one suffering from organic disease, consumption or cancer, dying from typhoid fever. He gives illustrations in which, when typhoid has attacked consumptive patients they have invariably recovered, both from typhoid and tuberculosis. He advocates inoculation, according to his method, of children whose family history is pronouncedly tuberculous or cancerous.

Dr. Louis Jenner, one of the most promising of our bacteriologists, died a short time ago of typhoid fever. He had been making experimental researches on that disease at the Lister Institute, and it is at any rate possible that he has fallen a martyr to his scientific enthusiasm. One of our foremost pathologists nearly died a few years ago of typhoid fever contracted in making post-mortem examinations. Those who are curious about coincidences may be interested to know that he was a son of Sir William Jenner, whose work so largely contributed to place the doctrine of the non-identity of typhus and typhoid on an unassailable basis.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON GENITO-URINARY DISEASES.

Stated Meeting held March 16, 1904.

The President, James Pedersen, M.D., in the Chair.

Perineal Galvanocautery Prostatotomy (two cases).—Dr. F. Tilden Brown presented these two patients for the purpose of bringing out an expression of opinion from the members of the Section as to whether they were not now in a position to classify the different forms of prostatic obstruction so as to select and practice that form of operation best suited for the relief of the disability. He felt satisfied that the age and constitutional state of the patient should be given due consideration as well as the

size, character and good of prostatic impediment. Even where the patient was not old and in good enough health to presumably undergo any ordinary operation, the more extensive and so-called radical procedures were not necessarily always the ones offering the best remedy for the symptoms. This is believed to be exemplified with the following:

Case I.—C. G., sixty-four years old; was admitted to Bellevue Hospital Dec. 13, 1903. Discharged cured March 14, 1904. Diagnosis: Prostatic bar, causing complete retention, cystitis and abscess of the scrotum. Family history, negative. Parents lived to an advanced age. Personal history: Generous alcoholic habit; fifteen years ago, right incomplete inguinal hernia. Three years ago, incomplete left inguinal hernia. Eight years ago, because of no favorable opportunity, he permitted a day to pass without urinating. At night he found himself unable. This disability continued two more days when catheterization drew an immense quantity. For two weeks following he catheterized himself and then had so painful a cystitis as to require hospital treatment for three months. When discharged the painful character of the cystitis was cured, but complete retention has always necessitated the use of the catheter. Since the institution of catheter life he has had a number of attacks of painful swellings of the testicles. Ten days ago a similar trouble appeared on the right side, eventuating in a large abscess of the scrotum. For this he entered Bellevue Hospital. To the inner side of the abscess an indurated mass led to the diagnosis of tuberculous epididymitis. Four incisions, curettage and gauze drainage was attended with prompt healing. A streptococcus was recovered by culture. Microscopical examination of tissue and pus failed to show tuberculosis. From the time of admission an aggravated cystitis was also treated, and the conditions causing his complete retention were studied. A rubber catheter was accepted without difficulty. The urinary distance was $9\frac{1}{4}$ inches, and the urine, to the last drop, was expelled through the catheter with considerable force. Digital examination of the rectum showed only a rather flat expansion of a moderately enlarged prostate. Up to this point the inference was that a pedunculated middle lobe was the cause of retention, but a cystoscopic examination showed the impediment to be an interprostatic bar or lip. A galvanocautery incision of this and the two slightly protruding lateral lobes were believed to offer admirable promise of cure of the symptoms. The operation was done on Feb. 13, 1904. Since the preliminary steps in the technic of Young's prostatectomy and Chetwood's prostatotomy are with advantage carried out in the same way, the operator, by being equipped with the instruments for both procedures, may, in cases somewhat similar to this, defer the decisive choice until the finger has explored the bladder. Such a plan was pursued in this case, but here the sense of touch only verified the cystoscopic picture, and prostatotomy was proceeded with. One median and a right and left lateral incision was made with the cautery knife. A large perineal catheter was retained for eight days. Convalescence was uninterrupted. At the end of one month the perineal fistula closed and all of the urine was voided through the urethra. The retrograded telescope of Dr. Brown's composite cystoscope shows the three furrows made by the cautery knife. Although the test of several different observers have here concurred in finding no residuum whatever after urination, he asked permission to make this test again before the Society. (In this test Dr.

Kammerer kindly assisted and reported that there was no residual urine after voluntary urination.) Although the patient dates his functional disability from the time of an aggravated inattention to a full bladder there is reason to believe that for a considerable time antedating this occurrence he had been unconscious of incomplete evacuation, as is the case with many prostatitics. Notwithstanding the perfect ability here shown to empty the bladder the speaker would not maintain that under the influence of certain vesical irritants enough congestion of the vesical meatus might ensue to cause temporary, moderate retention.

Case II.—H. S., seventy years old; minister; entered the Presbyterian Hospital Dec. 17, 1903. Diagnosis, prostatic hypertrophy. Family and previous history, negative. Severe cystitis, frequent and painful voluntary urination, five to eight ounces of residual urine. Present history: Eight years ago he noticed frequency of urination. Two years ago got wet and chilled during duties which offered no chance to urinate for six hours, and was then unable. He was catheterized and entered a New York hospital, where prostatectomy was advised, but declined. After a month's treatment he was discharged much improved and able to carry on his work for nearly two years without resort to the catheter. When two and one-half months before entering the Presbyterian Hospital and after an exposure similar to the first he had retention. He was now taught the use of the catheter and went South. One month later catheterization became difficult and painful. Friends and physician advised him to come North and submit to a galvanocautery operation. Only after admission to the Presbyterian Hospital, after being prepared for and within a few hours of the time fixed for a prostatectomy, did the patient definitely state this restriction. At this juncture Dr. Brown was asked by a colleague if he could operate. Both were satisfied that the conditions presenting were admirable ones for choosing a perineal prostatectomy in preference to any other operation. Rectal examination showed a prostate $1\frac{1}{2}$ by $1\frac{1}{4}$ inches, its size most conspicuous at the apex, where on the right side it was nodular and very hard, and at the left upper apex can be felt a hard, cordlike extension, perhaps a seminal vesicle. Galvanocautery prostatotomy operation with gas and ether was done Dec. 19, 1903. On opening the membranous urethra, only after instrumental dilatation could the finger be forced into the bladder. The intravesical extension of the lateral lobes was trifling, between them a fine tight bar was stretched; three galvanocautery incisions were made, and large perineal catheters secured. Apart from vivid nightly hallucinations the patient had a satisfactory convalescence, without rise of temperature and comfortable vesical drainage. He was discharged Feb. 3, 1904, with history notes showing a considerable improvement. Residual urine now varied between two and four ounces, and a catheter, when needed, can be passed without opposition. One week after discharge he had a sudden onset of right epididymitis, with chills and fever. He was readmitted on Feb. 10; chills were repeated. Six days after admission there was epididymitis of the left side. Rest and local applications were followed, at the end of two weeks, by subsidence. On March 1, while still in bed, he had an attack of retention requiring catheterization, when 13 ounces were drawn. Antiseptic, vesical irrigation were now begun again and the patient's bladder brought to nearly the same condition as when he left the hospital; but the general constitutional state was not so

good. In this case, although lowering the vesical outlet by cautery incision probably explains lessening the quantity of residual urine and the easier catheterization prostatectomy would have given vastly better results, for the hard, irregular prostatic masses surrounding the urethra prevent any of the normal elasticity. Undue exposure to wet and cold is apt to result in sufficient congestion to again cause complete retention.

Because the case illustrated one of the rather unusual symptoms of tuberculous epididymitis and vesiculitis, which may be alluded to in the paper of the evening, yet to be read on that subject, Dr. Brown asked permission to present a patient recently referred to him with a typical urethral discharge.

Case III.—G. E. D., forty years old; merchant; first seen Jan. 29, 1904. Family history: Some relatives on his father's side had had tuberculosis. Patient's brother had been sent to Saranac Lake for pulmonary trouble. Personal history: He had always considered himself well and vigorous; had had the general diseases of childhood; had had no form of venereal disease. Skin was very susceptible to poison ivy or any irritant. Has had many attacks of herpes. In the summer of 1898, and again in 1900, without appreciable cause, he had blood in his urine. Each time he was kept in bed for about a week, when the symptom disappeared. During the past three months he has had an unusual sense of fatigue and has lost ten pounds. He has a feeling of abdominal pressure or constriction which frequently makes him take a short gasping inspiration. Friends have remarked about his pallid color. Present history: Six weeks ago, about ten days after last coitus he noticed a slight moisture at glans penis; on examining the meatus he saw a single white drop. His physician had careful examination made to determine the nature of the discharge with negative results. Various injections and internal medication have not influenced the discharge, which has never been profuse or yellow. There have been no subjective symptoms. Three days ago, on Jan. 26, while walking, he felt his clothes pressing his right testicle; examining the organ, he found it larger and much more sensitive than the left. This new development, in connection with the persistent discharge, led to his being referred to me. X-ray examination showed no lung opacities. Genital examination showed a normal meatus, a thin, mucopurulent drop just within required a platinum loop to detach. Two glass slide mounts were made, the first stained with gentian violet. Pus and mucus only were seen. No microorganisms of any kind were found. The second slide was stained for tubercle bacilli with negative result. The microscopic picture, i.e., a great number of leucocytes with a striking absence of microorganisms is one so commonly met with in renal tuberculosis as to always lend additional weight to a preconceived suspicion of the disease. Urine passed in four conical glasses: (1) clear but for one or two small filmy flakes; (2) clear; (3) clear; (4) and last decidedly turgid. Part of the fourth glass centrifuged and examined showed the same pure pus fields without microorganisms. A number of slide stains for tubercle bacilli were negative. Examination of scrotum showed superficial veins more prominent on right side, and skin noticeably warmer, evidence of a slight accumulation of hydrocele fluid. Globus minor the size of a marble and hard; no leaking of the vas (since that time slight beading of the vas has developed), but there is some edematous fulness about the right

cord. Rectal examination showed prostate a trifle above normal size, slightly prominent in the median and inferior part. The right ejaculatory duct and the ampulla of the vas are enlarged and of pipe stem hardness, but not very sensitive. Neither vesicle so far as can be reached is distended or hard. Nothing appears at the meatus after the Neal examination but one-half ounce of urine now passed is turbid with pus. No appreciable spermatic fluid. Again the search for tubercle bacilli is negative. Endoscopic examination shows a normal anterior urethra. The prostatic urethra about and anterior to the caput galligaginis is edematous and congested. The features of special interest in the case are: (1) the two previous attacks of hematuria may probably have had their source in or close to the right seminal vesicle; (2) the present urethral discharge and the pus in the last portion of the urine quite certainly had such a source. The fact that the preceding two or three glasses are perfectly clear bars out any part of the urinary tract. The phenomenon then has its explanation in a compression and expression of the purulent contents of the ampulla of the right vas and seminal vesicle when toward the end of micturition the levator ani and ejaculator urinae come into action to complete the act.

Dr. L. Bolton Bangs said that, in his observations on the use of the galvanocautery or Bottini method, he had learned that soft prostates and not large ones were most amenable to this treatment, which was often followed by brilliant success. In a general way it might be stated that a prostate in which the fibrous structures were the most developed one should not expect too much from the galvanocautery operation. He wished to reaffirm what he had so often before stated that the operation of choice was perineal prostatectomy.

Dr. F. Tilden Brown said that the different conditions which had characterized the two cases he presented were: In the first the prostate enlargement as a whole was insignificant and flat except for the somewhat wedge-shape base at the vesical neck, making it a favorable one for galvanocautery prostatectomy because of this bar at the internal meatus. Whereas in the second case a rather large, hard and irregularly nodular prostate with a base which was most prominent forward and coming well in front of the prostate urethra made any such operation futile and was a suitable case only for perineal prostatectomy.

Multiple Septic Infarction of the Kidney; Nephrectomy.—Dr. A. A. Berg presented a patient who was perfectly well until the early part of last summer, when a tight shoe caused a slight abrasion of one toe. A physician was consulted at the time and he found a slight infection of the abraded area. This was dressed and the parts healed by granulations and closed up. The abrasion had been closed about one week when the patient complained of pain in the left loin, which passed down toward the bladder. Coincident with this pain there was some fever, the temperature rising higher in the evening than in the morning. This persisted for some weeks. Then a rectal examination made by his attending physician revealed a mass in the neighborhood of the prostate, which was fluctuating and tender. A diagnosis of prostatic abscess was made and through an incision per rectum considerable pus was evacuated. The urine, so far as the patient knows, remained clear. There was no increased frequency or pain in passing water. The rise of temperature after the evacuation of the pus continued and the pain in the

left loin persisted. A diagnosis was then made of tuberculosis with a possible involvement of the left perinephritic region. There were no chills or any evidences of bladder or urinary symptoms outside of the pain in the left loin. The patient went from bad to worse and was finally admitted to Mount Sinai Hospital, where he came under the treatment of Dr. Berg. This mass in the left loin was noted and corresponded to the left kidney. It was retroperitoneal, edematous, boggy, and deep fluctuation was elicited. Rectal examination revealed the scar of the incision. The prostate itself was apparently normal; its upper margin could be palpated. The incision in the rectal wall seemed to be above the prostate and appeared to surround the left ureter. Cystoscopic examination of the bladder showed the ureteral orifices to be normal. The catheter in the right ureter obtained clear urine but an attempt to catheterize the left ureter was met with failure. The catheter was blocked one-half an inch from the ureteral orifice. He thought possibly the catheter first used was too large and attempted to pass a smaller one, but could not go beyond that same point in the ureter. The cryoscopic examination of the urine and blood showed the kidney sufficiency to be normal. The left kidney secreted nothing during the visual examination. A diagnosis was made of perinephritic abscess secondary to a kidney complication and an operation was advised and performed. The temperature on admission was above 104° F., pulse 120, the patient's condition bad. He was much emaciated, having lost 40 pounds in his illness. Two days after admission the left kidney was cut down upon and a large perinephritic abscess was evacuated. The kidney could be felt at the upper angle of the incision and a number of fluctuating areas could be easily palpated. Aspiration of its lower pole yielded pus, which contained the *Staphylococcus aureus*. No blood culture was made. Delivery of the left kidney was not done because of the danger of infection from the suppurating perinephritic tissues. It was thought best to drain the abscess and allow the sloughs to separate. Accordingly a Mikulicz tampon was introduced and the patient placed in bed. For twenty-four hours the temperature declined; then the patient had a chill with rise of temperature to 105° or 106° F. During the next five days the patient had three chills with coexistent high temperature. Although the perinephritic wound was still in a sloughing condition, it was thought that any further delay in the removal of the primary focus of suppuration would be more detrimental than working through such tissues. The original wound was then enlarged and the left kidney cut down upon and peeled out of its fibrous capsule and delivered, its pedicle ligatured and the organ amputated. It was found to be studded with multiple abscesses containing *Staphylococcus aureus*. The wound healed kindly and the ligatures came away on the second week. Since operation there have been no urinary symptoms. Dr. Berg took it that the patient had multiple foci of infection, a descending ureteritis of a suppurating nature, with abscess around the lower end of the ureter. Such a periureteric abscess was incised rather than a prostatic abscess.

A New Method for Radical Operation for Malignant Disease of the Urinary Bladder.—Dr. A. A. Berg presented a woman of thirty-two years, to illustrate a new method for radical operation for malignant disease of the urinary bladder, especially of its posterior wall and floor. He first saw the pa-

tient in July, 1903. She suffered from a far advanced carcinoma of the uterus, vagina, both broad ligaments and *bas fond* of bladder. In view of her young years it seemed to him that an attempt might be made to prolong life by a complete removal of the neoplasm and the indurated uterine iliac lymphatic glands. The patient and her friends readily consented to operation, though little hope for ultimate cure was given, and though the risks of the operation were clearly stated. She was admitted to the Mount Sinai Hospital and operated upon by Dr. Berg in July last. The ureters were catheterized preliminary to the operation. The abdomen was then opened in the median line. The uterus, appendages and broad ligaments were found to be extensively involved, likewise the internal iliac glands and lymphatics, and the right posterior wall of the bladder; the right ureter passed directly into the mass. The uterus, appendages and internal iliac glands and lymphatics up to the bifurcation of the common iliac artery were removed in one piece. The bladder was opened below the peritoneal reflexion on the posterior surface just above the affected area. The cancerous tissue was excised together with the lower end of the right ureter; the proximal stump of the ureter was at once implanted into the summit of the bladder. The bladder defect was closed by catgut sutures for the mucosa and silk passed, cushion-mattress fashion, for the muscularis. The pelvic cellular tissue was drained *per vaginam* and the pelvic peritoneum completely closed. A complete closure of the abdominal wound was made. Permanent catheter was left in the bladder. The speaker was impressed with the ample space and ease of access this intraperitoneal route afforded for attacking malignant growths of the posterior wall and floor of the bladder. Furthermore, the intraperitoneal route was the only method by which the internal iliac glands and lymphatics up to the bifurcation of the common iliac artery could be exposed and removed. If these glands and lymphatics were not removed the operation was not radical and no permanent cure could be expected. The loss of blood was very little, and the shock, even after prolonged operation, was very slight, as there was no exposure of the viscera. The speaker's patient made an absolutely uninterrupted convalescence. The bladder and ureter healed kindly and there was never any leakage. The capacity of the bladder was not materially diminished. The patient gained 25 pounds after operation. She felt perfectly well until about two months ago, when she complained of some pelvic pain. Recently a recurrence of the carcinoma in the pelvis had been noted. She was still in good health and suffered very little.

Dr. Fred. Kammerer believed that laparotomy would of course give a better view of the bladder and give easier access to the seat of disease. As Dr. Berg was, no doubt, aware, this method of procedure (free incision of the peritoneum) was not a new proposition in the operations upon the bladder. Combined, in cases of cancer of the bladder, with thorough extirpation of the lymphatic glands on the floor of the pelvis, it was, according to the speaker's conviction, a very grave procedure. During the last decade more especially it had been generally acknowledged that progress toward securing permanent results could only be made, in cases of cancer, by the adaptation of methods which included the removal of the infected lymphatic glands. For example, the radical cure of cancer of the mamma, according to Halstead, gave much better results

than extirpation of the mammary gland with removal of only the axillary glands. But, he said, the operation suggested by Dr. Berg, of thorough dissection of the pelvic lymphatics in cancer of the bladder, was not a parallel case. He said that it was well known that the peritoneum could overcome a certain amount of infection when its vitality had not been injured, but the danger of peritonitis was vastly increased by the manipulations necessary to remove the pelvic lymphatics, and this was shown by the increased mortality of Wertheim's operation for removal of cancerous uteri. In the latter operation the wound surfaces could be drained into the vagina after suture of the incisions into the peritoneum, which should even lessen the risk of peritonitis. On this account the speaker feared that the mortality of the operation for cancer of the bladder, suggested by Dr. Berg, especially in the male, would be excessively high.

Dr. A. A. Berg said that the operation of removing the glands that were situated along the iliac arteries in cases of cancer of the bladder was to be advocated; if one removed the cancerous tissues and left the glands one would do but little good. One would not think to-day of removing a cancerous breast and leaving the axillary and other glands. He said that there was no method by which we could remove these glands except by the intraperitoneal route. The operation was a difficult one and should never be undertaken before both ureters had been catheterized; this helped to distinguish them in the mass of cancerous tissue. Regarding the danger of infecting the peritoneum he did not think the increased danger could compare with the risks of leaving behind in the pelvis infected cancerous tissues. The peritoneum was opened and protected by tampons and he believed that, if done carefully, there was no great danger of infecting the peritoneum. In both his patients there were no signs even of irritation. Another advantage of this operation was that where the ureter was to be resected the implantation was easy and the drainage was from below through the peritoneum or vagina. He believed the dangers of infecting the peritoneum had been much overdrawn.

A Case of Funiculitis Following Urethritis.—This was presented by Dr. James Pedersen. The patient, twenty-nine years of age, has had four attacks of urethritis within twelve years, but gives no history of severe posterior urethritis. He came under observation at the clinic the latter part of August, 1903, presenting a scanty discharge. Under hand injections of argyrol he did well, and at the end of four weeks an astringent injection was substituted. At this time pain in the groins developed, and has continued. Shortly thereafter both urines became cloudy, and about a month later the discharge reappeared. The treatment during this interval was tonics and balsams; no injections were used. Argyrol was then resumed. Three weeks later right epididymitis developed. It began to abate after three days in bed. A week later, after hard work and a slight traumatism, epididymitis in the opposite testicle developed. All local treatment was stopped, creosote and cod-liver oil were ordered and he was sent home to bed. After he had been in bed three weeks the present swelling appeared in the left groin. At the end of a month he reappeared at the clinic, having spent in all seven weeks in bed. No instrumentation had been employed at any time. About three weeks ago on three occasions, after straining at stool, the urine was very slightly blood-tinged. There is no family nor previous personal history of tuberculosis. Un-

der expectant treatment (cod-liver oil and creosote) the swelling has slightly diminished. The moderate purulent urethral discharge contains gonococci. One examination for tubercle bacilli has been made; the result was negative. The prostate is about normal in size, firm and its lateral borders are infiltrated. There is a marked cord-like infiltration in the region of the left seminal vesicle and ampulla; trifling infiltration at the corresponding point on the right side. Anything more than very gentle massage of this region causes blood to appear in the urine. Since last summer the patient has been very hoarse. At that time he had what was said to be a severe bronchitis. He gives a history of having worked for a year in a dusty room amid generally unsanitary surroundings. Dr. T. J. Harris, who kindly made a laryngoscopic examination, reports a small papiloma attached subglottically to the left vocal cord, which may be innocent but is probably tuberculous because of dulness and high prolonged expiration at the right apex, together with subnormal temperature.

Papillomata of the Bladder Removed by Suprapubic Cystotomy.—Dr. H. H. Morton presented this specimen which was removed from a man, forty-two years old, who had always been well up to five years ago, when he got wet and then found the beginning of his present trouble. There was pain in the back and frequent urination, with a little hematuria. The symptoms soon changed and, during the last two and a half years, he complained of frequent urination, every hour by day and three or four times by night. There was sudden stoppage of the stream while in full flow and this always caused him severe pain in the bladder. Blood was passed freely, usually for two or three days, and then ceased. One week ago he passed four fleshy masses without pain. On August 11, 1903, examination showed eight ounces residual urine. No stone was present. It was impossible to use the cystoscope because of the hematuria. Papillomata of the bladder was suspected, and a suprapubic cystotomy was performed and the specimen presented was removed. The wound healed after a very protracted and slow period of convalescence. The patient was discharged cured.

Dr. John Van der Poel asked Dr. Morton if he effected the removal of the growth with the knife or with the Paquelin.

Dr. Morton replied that he was prepared to use the Thompson bladder forceps, but he found that it was easier to remove the growths by means of the fingers, twisting them off.

Dr. R. Bolton Bangs said that one of the most interesting questions in such cases was that of recurrence and what steps should be taken in treating the base of the growth to prevent this. In those cases he had operated on, without absolutely resecting the bladder wall, he had removed the growths as thoroughly as he possibly could and then freely cauterized the bases and yet, in two cases in which he subsequently reopened the bladder on a return of symptoms, there were recurrences at the former locations. One case recurred within two years and the other the interval he did not remember. To him this question was most interesting.

Dr. Van der Poel said that one would be less likely to have recurrences if the Paquelin was used. In two cases in which the Paquelin was used there had been no recurrence in two years in one case, and in one year in the other.

Dr. H. H. Morton said the use of the Paquelin was valuable in many cases, but the free bleeding which accompanied the removal of the growths made it

very difficult to use. The blood concealed the surfaces which should be burned and it was impossible to sponge fast enough to get a clear view. Unless the surgeon saw distinctly the tissues which he was cauterizing he might destroy important structure such as the ureteral mouths or openings of the urethra.

Treatment of Tuberculosis of the Testicle.—Dr. J. B. Bissell read this paper. Will be found in full on Page 111 of this issue of MEDICAL NEWS.

Dr. F. Tilden Brown said he took no exception to the methods of treatment advocated because he was in accord with the views expressed. The fact that the seminal vesicles and the upper part of the vas deferens were so commonly involved in these cases of tuberculous epididymitis with but a slight invasion of the lower part of the vas made him question the direction the infection traveled. The consensus of opinion to-day seemed to be in favor of the original focus being in the lower part of the tract although those who had expressed different views in their writings during the previous decade still clung to them. He asked the reader of the paper if he understood him to say that Dr. Murphy expressed the opinion that the original primary tuberculosis of the epididymis or testis was apart from any intrathoracic or gastrointestinal lesion? If so, he must take exception to it. There was one symptom of interest which struck him as particularly noteworthy, and well illustrated in the case he had shown to-night, where the bladder, kidneys and urethral tract were not involved yet pus would sometimes appear in the urine or there might be a hematuria and the first and most natural inference would be that they came from the bladder or urinary tract. They might, however, have their source in a seminal vesical or ampulla of the vas, and in some such cases this symptom would disappear after operation upon the lower genital organs. Some authors have ascribed a bladder origin to such hematuria and considered it sympathetic only and not necessitating any tuberculous lesion. Dr. Brown had not personally seen any such case.

Dr. John Van der Poel spoke of the interesting point which was first brought forth by Dr. Young, of Baltimore, treating the vas deferens by anchoring it in the upper part of the wound. Three or four years ago he had an interesting case which gave the usual history of injury to the testis and, upon examination, a sinus was found leading to what was supposed to be at the time tuberculosis of the epididymis connected with tuberculosis of the prostate gland. No bacilli could be found in the secretions from the testis through the sinus, but the diagnosis was made after massage of the gland and then examining the discharge from the urethra which showed the bacilli. In this instance he did an epididymectomy and the vas deferens was anchored in the upper angle of the wound in the groin. The case did not do well. Upon microscopic examination the pathologist gave it as his opinion that the condition was tuberculous, although a previous examination had revealed no tubercle bacilli. Of course he was apprehensive as to the result and would not have done anything had he known that the epididymis and testis had become acutely involved. The patient, however, insisted upon a thorough operation and it was only upon his insistence that he would consent to do it. He then did a complete double castration. The wound upon the left side continued to drain for months and finally closed. The tuberculous nodules upon one side of the pro-

tate, which were quite small, disappeared. One would hardly have believed it to be a tuberculous prostate upon ordinary examination. He said that tuberculosis presented so many phases that the short time at his disposal made it difficult to discuss them under one heading. All knew that a large number of tuberculous patients did extremely well when placed upon proper general hygienic treatment, i.e., tuberculosis of the genitourinary tract as well as of the pulmonary organs. It was well known that operations for the removal of a local tuberculosis did not always give good results because there was apt to be a return of the disease. In the majority of cases the results are such that we should not perform an epididymectomy, or a castration, where the prostate or seminal vesicles or bladder were involved.

Dr. James Pedersen referred to a case of primary tuberculosis of the epididymis which he had seen in consultation. The nodule was very small; there were no evidences of tuberculosis in the lungs nor in the prostate and seminal vesicles; the diagnosis was made by exclusion. The patient being a man of means and able to give himself every advantage, hygienic measures were advised for the immediate present. Two weeks later the patient consulted one of the best and most conservative general surgeons in the city, who advised immediate removal of the testicle and epididymis, and performed the operation. The case goes to prove the diversity of opinions as to the proper treatment of this condition.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting held April 5, 1904.

The President, Pearce Bailey, M.D., in the Chair.

A Case of Myasthenia Gravis.—Dr. L. Pierce Clark presented his case, which, in many respects, was typical and not of particular interest except that the diagnosis was made upon the myasthenic reaction and exhaustibility of the muscles of the shoulder and pelvic girdle. The rapid exhaustibility of the muscles was more marked upon the left side. The paresis that was present was very persistent and there was a remarkable variability regarding the intensity of the symptoms. The patient's expression was sleepy and there was some ptosis. The patient had been bedridden for three months and, up to two weeks ago, the condition had grown progressively worse. Then she was given thyroid and, two days later, the parents noticed a great improvement. She even then could walk down stairs and go about some. She had the gluteal walk. In addition to the thyroid she was given thymus gland, but it had not been given long enough to make a report as to its effect in this case. She also had the condition known as "dead finger." Certain of her fingers were in this typical state and was brought about by cold, exhaustion and depressing emotion. Two months ago she developed facial edema, especially marked in the lips, and which looked as if some insect had stung her; this interfered with her speech, but that slowly passed away with her other symptoms. There was also tongue atrophy which was rather atypical. Among the striking features were periodic attacks of diarrhea, which were not due to causes other than increased peristalsis. The most marked exhaustibility was in the deltoid and trapezius muscles. The voice showed the peculiar nasal tone of the exhaustibility in these cases. The quadriceps extensor was but little involved. She has had "dropping

spells" in the streets. There was some difficulty in swallowing in the past, but now was much improved. There was a weakened hand-grasp on both sides. The galvanic and faradic currents do not get good responses in these cases.

Dr. Graeme M. Hammond asked if an examination had been made of the muscular tissue.

Dr. Clark answered that the patient objected so to such an examination that it had not been made, but he thought that in time he would get her to consent. The blood examination had not yet been made. He said that Dr. Henry Hun, of Albany, had suggested that there might be some irritation about the thymus gland which stirred it up into activity, giving rise to this condition. Dr. Clark did not think this was so because the thymus had been found to be normal in so many of these instances.

Tuberculous Meningitis.—Tubercle of Inferior Olive.—Dr. L. Pierce Clark presented this specimen, which was removed from a patient fourteen years old who had been referred to him by Dr. F. M. Cook on February 28, 1904. Headaches had existed for the past four months, the girl was staggering for the past three weeks and vomiting had occurred on rising in the morning. The family history was negative aside from the father's dying from chronic alcoholism. The boy was bright, intelligent, and well developed for his age; he appeared dull at the examination. The cranial nerves showed an unequal and irregular weakening in the following nerves of the right side, seventh, eighth, ninth, tenth and twelfth. Dr. Holden made an eye examination and reported the disks normal. There was bilateral ataxia in all movements of the upper and lower extremities. He walked a little to the right. The gait was markedly cerebellar, knee-jerks were bilaterally exaggerated, true ankle-clonus was present at times, but there was absolutely no Babinski at any examination. Big toe flexion was, however, slower on the left side. On March 1 the patient became delirious, would eat nothing and showed the first signs of a marked rise in body temperature. There was slight persistent pain over the right mastoid. The patient was referred to Roosevelt Hospital. During the next week he had a continuous temperature ranging between 101° and 102.5° F. and for the most part he was in a semi-delirious condition day and night, suggestive of basilar meningitis. The blood count showed no leucocytosis, and two lumbar punctures were completely sterile. The diagnosis of solitary tubercle in the lower right half of the fourth ventricle and a more or less diffuse basilar meningitis was held as the most tenable pathological lesion to explain the symptoms. As a last resort an operation in two stages was advised to relieve pressure and possibly later to remove a portion of the tumor. The first step was performed by Dr. Brewer in nine minutes. The patient stood the operation well, but died the following day.

The report of the brain tumor found at autopsy was as follows: There was marked opacity of the pia at the base, most pronounced in the region of the Sylvian fissure, the anterior and posterior perforated spaces and the crura. The opacity was composed of minute whitish pin-points scattered unevenly and most numerous in the areas indicated. In the position of the right inferior olive there was a mass about the size of a small hickory-nut. Its contour was not perfectly regular, generally oval, consistence markedly increased, and it was ultimately blended with the surrounding nervous tissue.

Dr. Pearce Bailey asked if a section had been made of the tumor.

Dr. Clark replied that he had tried to keep the tumor in its external appearance and, therefore, no sections had been made of it.

Case of Brachial Birth Palsy.—Dr. A. S. Taylor presented this patient. The boy was born after a dry labor, with instruments and after a great deal of traction had been made. The child was born greatly asphyxiated and it took some time for his recovery. After that it was found that he had paralysis of the right arm. During the first few months of life there was no improvement in the condition, but, during the next one or two years, there was a slight improvement in the muscles of the right upper extremity. There was a cessation in the improvement from two or three years ago and, from the time he say him, about ten months ago, the condition was as follows: There was a marked internal rotation and contracture at the wrist. The deltoid showed paralysis and considerable atrophy with displacement downward of the head of the humerus perhaps one-half to one inch. He said the muscular changes and the reaction would be referred to by Dr. Clark in his paper. In the paralyzed muscles there was the reaction of degeneration and a great deal of atrophy of them. There was a marked lack of development between the bones of the two sides. There was 2½ cm. difference between the clavicles and there was also a difference in the length of the humerus and bones of the forearms. Operation was performed nine months ago. A very interesting thing was noted in this instance. The anterior nerve division derived from the junction of the fifth and sixth cervical roots was torn away and displaced downward 2.5 cm., and was adherent to the front of the scalenus anticus by firm fibrous adhesions. The nerve was dissected free and its damaged ends removed. The junction of the fifth and sixth nerves and the posterior division derived from them was the seat of cicatricial enlargement and induration. The damaged tissue was excised, the freshened ends sutured, Cargyle membrane wrapped about the junction and the wound closed as usual. The patient was placed in a dressing which approximated the shoulders and neck and this attitude was maintained for three weeks. Then the dressing was removed and the patient was allowed freedom of his extremity and was encouraged to move it as much as possible. From then on, under the supervision of Dr. Clark, he had received electricity and other treatment to develop the general condition of his muscles and made to use his muscles himself. For three months there had been more or less complete paralysis in all muscles supplied by the fifth and sixth cervical nerve roots. Now there is absolute return of nerve function. Before operation the hand had always been held in a markedly contracted position and there had been ulnar deflection. The return in the musculo-spiral nerve function was most slow. The posterior dislocation of the humerus was very marked two months ago and there was still a spontaneous rotation and reduction now going on. The patient had not yet much rotatory power.

A Case of Obstetrical Palsy.—Dr. Royal Whitman showed the case of a little girl, nine years old, who had a posterior rotation and displacement of the humerus. She was first seen last summer after she had been going for three months to various clinics. The humerus was rotated backward and there was ankylosis at the shoulder-joint. The treatment adopted formed the subject of his paper, *q.v.* The first treatment consisted in efforts at replacement of the displaced bone. One extremity was much smaller than the other as also was the size of the

scapula. He showed the Section the amount of power that had been acquired in the deltoid. Supination was quite marked, but there was a limitation of flexion which was quite marked after the arm had been replaced. The patient was still under treatment, and Dr. Whitman demonstrated the method of overdistention, outward rotation, extension of forearm, supination, etc. It was in fact a demonstration of forcible manipulation which was absolutely necessary in the treatment of these patients. The improvement in this patient had been very marked and he believed that eventually there would be recovery. He said that reposition of a dislocated shoulder would not cure the nerve lesion, but would make it possible.

A Case of Obstetrical Paralysis.—Dr. Royal Whitman also presented this patient, a woman. The arm of one side was about three and a third inches shorter than the other. A diagram he presented showed the condition seen last summer. The patient now wore an apparatus during the day which kept the fingers in extension. There was great improvement in the condition of the fingers. This was an extreme case of obstetrical paralysis.

A Case of Obstetrical Palsy.—Dr. Royal Whitman also presented this patient, which was even more serious than the others. The original paralysis was on both sides in the arms. There was a great difference between the two extremities. Until two months ago the patient could use only one hand to dress herself, under appropriate treatment there was noted an improvement.

A Case of Obstetrical Paralysis.—Dr. Royal Whitman presented this patient which illustrated a form of posterior luxation and resistance to outward rotation. He said that if one expected to get good recovery from the employment of manipulation one must first overcome this resistance to normal motion.

Brachial Birth-Palsy and Its Surgical Treatment.—Drs. L. Pierce Clark and A. S. Taylor presented this communication, which was in the nature of an abstract and was intended only to cover the *principal* facts brought out in a study of brachial birth-palsy. A detailed account of the data would be published in full at a later date. While the clinical diagnosis was quite clear, its etiology was still mooted, although it was almost universally believed to be due to tension or compression of the fifth and sixth cervical roots. Tension probably played much the greater rôle in the causation although both factors had been proven causative agents both in clinical and experimental work. As a rule there was given a history of force having been applied during the birth of the child. In some various abnormal presentation had been present. In all the cases that had come to their knowledge there had been either a history of traction, or else this factor could not be excluded. The one and constant factor in its production, in their opinion, was traction, produced by forcible depression of the shoulder while the head was bent to the opposite side and rotated; in this way the cervical nerve roots were overstretched, causing rupture of the nerve fibers over a considerable length of the nerve, or in some cases complete rupture of the nerve. The lesion was always in the fifth and sixth nerve roots, frequently also in the seventh and occasionally in the eighth and first dorsal. From a brief review of the clinical picture of brachial birth-palsy, its etiology and pathology they said that one was impressed with the inadequacy of the present medical treatment. Surgical intervention naturally suggested itself, such as had been done in peripheral

nerve injuries in general. Few secondary operations had been done upon the brachial plexus. During the past year they had operated upon four cases of brachial birth-palsy. Details of the operation were given by Dr. Taylor in his discussion. A relation of the four cases here followed. Fatal results occurred in the first and fourth cases and this brought forth the question of the degree of shock involved in the division of large nerve trunks near their spinal origin. In the first case the length of the operation, and the fairly large loss of blood incident to it, obscured the problem. In the fourth case the operation was much shorter, the loss of blood slight, and the damage to the nerve much less. Still the result was practically the same, though not so rapid. The time consumed in all four operations was unquestionably too long, but this was due to (1) unexpected conditions demanding careful dissections; (2) the delicate manipulation necessary to the handling of nerve tissue; (3) lack of skilled assistance. The following conclusions were presented:

1. The most important etiological factor in the production of brachial birth-palsy was direct or indirect tension of the nerve trunks which cause rupture of nerve fibers.

2. An explanation of the persistence of the palsy was clearly based upon the pathological findings which consisted of a destruction of the axis cylinder by rupture of the nerve fibers and formation of an overgrowth of connective tissue between the torn nerve ends through which the nerve fibers cannot regenerate.

3. The nature of the lesion in all typical severe cases demanded excision of the damaged nerves and suture of the good ends at the earliest possible moment, as in the treatment of peripheral nerve injuries elsewhere.

4. From the surgical viewpoint the desirable time for this interference was not yet determined. It would, however, seem to be much later than two or three months after birth, as Kennedy advised.

5. The present medical treatment consisting of an application of massage, electricity and systematized muscle movements should follow the surgical interference.

6. The prevention of this serious lesion of the brachial plexus rested with the obstetrician who should not stretch the child's neck in the process of delivery.

Remarks on the Surgical Treatment of Obstetrical Palsy.—Dr. Royal Whitman read this paper (see preceding page).

Dr. Alfred S. Taylor opened the discussion by stating that the question of prophylaxis was the most important in the consideration of this subject and, in order to have an intelligent grasp on the prophylaxis one should know more regarding the etiology of the conditions met with. The books state that pressure upon the clavicle during birth, hyperextension of the arm, pressure of the forceps, pressure of the fingers, etc., during birth will cause the condition. In the later literature it will be found that tension is the chief factor. If one could give an exact etiology one could make great advances in prophylaxis. For this purpose he had had the privilege of examining many newly-born infants to determine whether he could find an exact etiology. He experimented on eight children, using great force in pulling on the neck away from the brachial plexus and, no matter how hard he pulled, there always seemed to be present a pad of muscular and fatty tissue in which the nerves could sink and it seemed to him that any damage to the brachial plexus from

the application of such a force was only theoretical. He took stillborn children and placed them in attitudes assumed during the process of delivery; then pushing back the clavicle he could not get even enough pressure to cause any marked tension of the nerves. Placing the arm back of the child's head did not place the nerves on sufficient tension to cause any damage. While the arm was in that position, the forearm was firmly grasped and the fifth and sixth nerve then were sufficiently loose that they could be moved. Anything which depressed the shoulder and increased the distance between the shoulder and the neck caused greater tension of those nerves. In the living child one could place the finger between the anterior scalenus muscle and the nerves when they would feel like fiddle strings. This forcible depression of the shoulder first caused a tension of the fifth and sixth nerves and it was demonstrated that they would give way in the same position in which they were found in other cases upon which he had operated. First the fifth and sixth nerves would give way, then further pulling would cause a similar damage to the seventh nerve. It seemed to him his experiments proved distinctly that the etiology of this condition was purely that of tension and, therefore, the question of prophylaxis should be considered, and this consisted in exercising care *not* to pull the head away from the shoulder when the latter was fixed, or *not* to pull on the shoulder away from the head when that was fixed.

Erb's Palsy at Sloan.—The resident at Sloan reported six cases of Erb's palsy. In one, the presentation was a normal vertex, with delay after the head was born. With but slight pulling the shoulders were delivered and following this there was a double paralysis of the arms which soon disappeared. It was of the Erb type. In another case of Erb's palsy the hand had been placed under the neck and, after delivery of the head, had pried upon it, so producing the condition. In the other four cases, they were all breech presentations. He said that one could readily see that if the forceps were applied to the head and force exerted when the shoulders were fixed, one would produce exactly the same condition of affairs as was noted in his experiments. Again, in breech presentations, if one pulled upon the legs before the arms were delivered, there would be no traumatism to the brachial plexus; but when the arms were delivered, if the fingers were placed over the shoulders and traction made upon them, when tension would be brought to bear upon the plexus. In hooking the fingers over the shoulders the tips of them rest upon the nerve cords themselves and, if any tension was produced, it would be a greater tension and a greater lesion would be produced than if force had been applied without the finger tips over the nerve cords. He believed that this was the reason so many more cases occurred in breech than in vertex presentations. Again, it was a question with him whether the bringing of the child's body over upon the abdomen of the mother, so producing extension of the neck, would not produce the lesion. He had experimented upon this and found that the nerves were not made very tense, certainly not enough to cause them such injuries. He said that a considerable degree of force was necessary to produce rupture of these nerves. He emphasized the fact, that in the delivery of every child, one should use a reasonable amount of caution to prevent these birth palsies. Another interesting feature noticed when operating was that not only was the nerve trunk itself damaged, but also the deep cervical fascia, and this fascia was found to be adherent to the nerve

trunks. He said that only recently he had seen a patient at the Vanderbilt Clinic which showed the same manner of traumatism and the same results as those that had been reported. Frequently one saw instances of men who had fallen from a height and struck upon the head and shoulders and the resulting paralysis could be likened to that occurring in birth palsies, with the paralysis and atrophy of certain muscles. Pressure upon the branches of the fifth and sixth nerves revealed, in such instances, a marked degree of tenderness. It was the stretching of these nerves that caused the lesion. He said it was worthy of comment in the operation proposed to refer to the importance of the suprascapular nerve. In his first two operations he did not appreciate the value of this nerve in the ultimate results. It was rather small in children, but it controlled largely external rotation of the humerus and, therefore, one should use caution not to get it in line with the nerve sutures. It seemed to him that from the findings which were shown in the microphotographs, one could scarcely feel that a case of well-marked Erb's palsy could be cured without excision of the nerve and suturing of it. Dr. Whitman's paper, he said, treated of the reduction of the deformity before other measures were applied to the nerves for their regeneration. He said a reposition of the dislocated shoulder could not bring the muscular tissue into action if such tissue was not innervated.

Dr. B. Sachs said the subject was a most interesting one, as well as a very serious one and that it was very necessary that one should have a clear understanding of many of the points raised. It should first be clearly understood that not all obstetrical palsies were cases of Erb's palsy, because, he believed, there were many obstetrical palsies that had nothing to do with the fifth and sixth cervical nerves; there were many instances in which traction upon the arm produced luxations and subluxations, and the pressure of the head of the humerus was at a point lower down than the fifth and sixth nerves. Therefore, he thought, one should be careful in claiming that this method of operating was going to be a panacea, or one method of cure, for obstetrical palsies. He said there was a natural mode of recovery in obstetrical palsies, even in those cases which appeared to be extremely severe from the time of birth. It was very important to watch these cases from the earliest times. He had been in a position to see obstetrical palsies from the day of birth, and had been able to follow them for years afterward; he had had several children under observation. What he wished especially to impress upon them was that if they examined many cases soon after birth they might find a distinct subluxation of the head of the humerus probably below the deltoid which might possibly be identified with Erb's palsy; therefore, all cases of obstetrical palsies were not Erb's palsies. In one of his own cases a great deal had been accomplished by careful treatment by the early application of electricity, which was really another valuable form of gymnastics, and the intelligent use of massage. That so many of the cases did so well, reduced the question, he thought, to what would be the proper time for operation, and this seemed to him to be a very serious matter for their consideration. If one operated early there was then a tremendous amount of shock. Could one expect more from operation than from the inherent recuperative powers of the nerves and muscles themselves? He believed that if there was muscular atrophy and a great deal of wasting, especially about the shoulder, no amount of suturing of nerves, or transplantation

of their divided ends, would bring about thoroughly satisfactory results. In one of the cases presented he could not satisfy himself that there was the least deltoid action; the child exhibited nothing akin to deltoid action. He said he did not wish to discourage the operation in the least because he was ready to believe that, in carefully selected cases, they might be benefited by operation. But, he said he was much puzzled regarding the proper time for operating. When should this treatment be undertaken? that was the question. The remarks of Dr. Whitman, he thought, were quite *apropos* and entirely correct. Much of the trouble was due to secondary changes in the muscles and ligaments about the joint, and this must be overcome before anything much could be expected from the surgical interference. He believed the operation was a dangerous one; aside from the hemorrhage and its consequent shock one should bear in mind the proximity of the cervical portion of the spinal cord which adds to the danger. He hoped that the operation would prove beneficial, but because many cases did well without operation he was reluctant to resort to this surgical procedure at present when it was attended with such dangers.

Early Operations.—Dr. Carmalt spoke of patients that had been operated on before the fourth week of life. In one the fifth and sixth nerve roots were torn from the spinal cord and nothing could be done and the child died one month later. At autopsy it was demonstrated that the fifth and sixth nerve roots were torn from the cord itself; they were shredded out. The traumatism at the time of operation did not seem to be very great. In the second patient the point of division was not at the point referred to by Dr. Taylor. It was only when these nerves were under some tension that they were liable to rupture. A little over 60 pounds pressure was found to be necessary to break the nerve and he said that few obstetricians used that amount of power. At the hospital it had been demonstrated that one case required 60 pounds and four others required between 80 and 100 pounds pressure before rupture occurred. In the third patient rupture of the nerve took place and was a transverse rupture. It was easily sutured and the child did well for six months, but died of an enteritis. Operation was done during the third week of life. The child had apparently recovered the use of the arm, but whether the nerve would ever have fully regenerated was a disputed point. The fourth patient died of sepsis, five days after operation. He did not think the question of shock in the older cases was of such importance as in early life. One manipulated the spinal cord in spina bifida, where the trunks were larger than the fifth and sixth cervicles, and the amount of traumatism was as great, if not greater, and yet no apparent shock resulted. Hemorrhage should not influence the shock greatly because it could be so readily controlled. He thought that the time to operate in these cases of birth palsies would be somewhere between the fourth and fifth month and not so late as the second or third year.

Dr. Terriberry believed that any contribution to this subject would be greatly welcomed. So far the reports of operations for birth palsies showed it to be a very serious performance. He said that undoubtedly there were many cases which were not the result of stretching and he had in mind a case in which the end of the forceps impinged upon the fifth and sixth cervical roots, a very unusual thing. This case rapidly and completely recovered. This was a case of simple traumatism. He had had under

observation a case of double palsy of the Erb type which followed a breech presentation and it was not in any way produced by traction. The trouble here was due to pressure upon the cervical roots. This child rapidly improved and both arms became about equal. The question raised by Dr. Sachs he thought a very important one. Everybody knew that these cases, if they improve, will improve slowly for a great length of time. The manipulations brought out by Dr. Whitman he believed to be a great aid in the cure of these patients. He believed the whole question resolved itself into the making of a correct diagnosis as to the cause. A number of cases were undoubtedly due to pressure, traumatism being applied low down on the plexus. To operate upon such cases he believed would be unwise. If by any possible means one could determine that the nerves were torn then the sooner the operation was done the better.

Dr. William M. Leszynsky said that considering the inherent power of the peripheral nerves to undergo regeneration, and in view of the fact that this was a dangerous procedure, he believed it would be wiser to wait for some time, keeping the arm in proper position, before one should resort to such a dangerous procedure. He said he would hesitate very much before he had any of his patients submitted to operation, at any rate early in life.

Dr. B. Sachs said he did not think any one had a moral right to operate upon these children before several months had been allowed for their cure by other than operative means, because the operation was a dangerous one and a chance should be given to the child to recover by natural means.

Time Best Suited for Operation and Technic.—Dr. George E. Brewer thought that enough pathological material had been presented to enable the profession, in a certain number of cases, to say positively that a rupture of the nerve or nerves had occurred and, in those cases which presented the Erb type, it was obvious that no perfect result could be obtained unless some reestablishment of the nerve trunks was made. The question as to the gravity of the operation, he believed, should not be considered at the present time, when only a few operations had been undertaken. He referred to the history of gall-bladder operations, or appendicitis operations, etc., of their early failures and early high mortalities; yet when the technic was improved and they had more experience with such cases, the mortality was greatly reduced, from 50 and 60 per cent. down as low as two per cent. Therefore, he did not think it right, in view of the few operations reported, to say that this operation was a particularly dangerous one. In one of Dr. Taylor's cases there was hyperpyrexia, the temperature going to 106°, 107° and 108° F. and this, in the presence of a sterile wound, he considered rather unusual. It resembled the temperature following thyroid operations. He said that unquestionably the operation could be performed with a much lower mortality when they had improved their technic, for children, as a rule, bore operations well. He said that Crile had demonstrated that by cocaineizing the nerve trunks shock could be diminished tenfold. He had no doubt but that better results could be obtained after more operations had been done.

Regarding the time for operation in these cases he said that all who had seen nerve division and suture recognized the fact that the best results were obtained operating soon after the injury took place as possible. The sooner the better. Therefore, if surgical procedures were to be carried out they must be done

relatively early. He believed that complete atrophy of the muscular fibers precluded the possibility of operation.

Dr. Wisner M. Townsend said that the causes of death in these cases might be due to various unknown causes which may be eliminated in the future. There might be something in the method of operating which would reduce this high mortality if eliminated. If it could be determined that rupture of the nerve had actually occurred then he thought combining the method suggested by Dr. Terriberry and that of Dr. Whitman would be very advantageous.

Dr. Pearce Bailey said that it seemed to him that the question gathered itself up into the matter of the time of operation. Those cases that were operated upon early seemed to do well, but when they were operated upon late, he questioned if anything was to be gained. A paralysis that had existed two years or more did not offer much hope from operation. The fact should be borne in mind that very frequently the case is beyond the scope of operation. Statistics show that when the nerve roots are severed from the spinal cord there is nothing to be hoped for from operation. Many cases recover late and often one might operate upon a case that would have recovered without operation. He said that upon these two points the question hinged and more cases should be reported before anything definite could be decided.

Dr. Thomas P. Prout said that if the nerves were involved in foreign tissue it was impossible to repair the condition except by surgical means. There certainly was a certain number of cases that should be turned over to the surgeon.

Dr. L. Pierce Clark, in speaking of the various types of palsies, said that often one could disclose the particular type by palpation; also by noting the muscles paralyzed, the atrophy, the deformed arm, etc., all would give definite information where the lesion lay. With regard to spontaneous recovery occurring he said that everybody took advantage of that after a certain length of time. After two or three years, when atrophy had occurred and the muscles had undergone marked contractures, deformity was produced. The exact time that operation should be performed in these cases he could not say. But there was one thing certain that they did not intend to do the operation under one year of age. He said he was glad to hear what Dr. Whitman had stated regarding replacing the humerus and overcoming the contractures and he hoped such information would enable them to bring out better results in the future. He thought that overcoming these old contractures and replacing the head of the humerus was a necessary adjunct.

Dr. A. S. Taylor closed the discussion by stating that if he had known the exact condition of the first child operated upon the child would be living to-day. The operation was a prolonged one and there was much hemorrhage. The question of hemorrhage should always be considered in the operative treatment in these cases. The second patient that died was in a very bad condition and had been in the hospital for months with recurring attacks of dysentery. The dysentery following the operation materially hastened the child's death so they could not blame the operation for the death in that instance. In selected cases he did not consider the operation a very dangerous one, as it seemed to be from the statistics. The question of hemorrhage could be readily disposed of because there was really but two small blood vessels that were cut.

Dr. Abrahamson, in speaking of the cause of death in the two patients, said the relation of the cervical cord and the sympathetic system should be borne in mind. Hyperpyrexia and thyroidism could be explained by the connection between that part of the cord and the sympathetic system.

BOOK REVIEWS.

LA RHINOPLASTIE. Par Ch. NÉLATON et L. OMBREDANNE. G. Steinheil, Editeur, Paris.

THE subject of rhinoplasty has always been a most interesting department of plastic surgery, partly through the very wide scope for individual ingenuity the operation involves and partly through the early date at which many of the procedures were elaborated. Seductive as the technic of reproducing a missing nose has always been to surgeons, it must be admitted that the results are usually very mediocre and there is some justification for the frank brutality of a saying attributed to Denonvilliers to the effect that in these cases the surgeon does but substitute for an infirmity that is disgusting one that is ridiculous.

In the present volume the subject is treated with the utmost attention to detail. The historical aspects of the different methods are entertainingly indicated and the steps of the operations advocated by scores of surgeons are very clearly given in nearly four hundred cuts. The inadequacy of attempts to replace complete defects merely with fleshy flaps is pointed out and in addition to many others, one most ingenious method is described in which a portion of the cartilage of the eighth rib is transplanted under the periosteum of the frontal bone and later is utilized in the frontal flap which forms the new nose.

GUY'S HOSPITAL REPORTS. Edited by J. H. BRYANT, M.D., and F. J. STEWARD, M.S. Volume 77, being Volume 43 of the Third Series. J. and A. Churchill, London.

GUY'S HOSPITAL REPORTS always contain some very interesting material of clinical importance. The present volume opens with an article on disease of the heart due to overindulgence in alcoholic drinks, by Dr. W. Hale White, in which what is sometimes known as the Tübingen or München heart is especially discussed. This is a form of dilatation of the heart which has been found very commonly in these two cities, as also in other parts of Germany, in which the history of the patients shows that they have been free drinkers of malt liquors. The amount imbibed by some of the patients would seem almost impossible, except to such as have had experience with men working in breweries. Thirty-five liters or even more, that is to say, something over twenty quarts, are sometimes consumed in twenty-four hours. This form of heart disease has been found in other countries, since attention has been called to it in Germany.

Other interesting articles in the present volume are those on a contribution to the history of the intravenous injection of drugs, by Dr. J. M. Fortescue Brickdale; Eosinophilia in Skin Diseases, by Herbert French, and some cases illustrating the influence of Heredity in angioneurotic edema, by C. A. Ensor, in which a series of family cases of this affection is described.

BOOKS RECEIVED.

UTERO-OVARIAN ARTERY. By Dr. Byron Robinson. 8vo. Illustrated. E. H. Colegrove, Chicago.

THE MAN WHO PLEASES AND THE WOMAN WHO CHARMS. By John A. Cone. Third revised edition. 16mo, 131 pages. Hinds & Noble, New York.